THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture and Rural Economy.

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"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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JANUARY.

"Where now the vital energy that moved,
While Summer was, the pure and subtle lymph
Through the imperceptible, meandering veins
Of leaf and flower? It sleeps; and the icy touch
Of unprolific Winter has impressed
A cold stagnation on the intestine tide."

WORK FOR THE MONTH.

ACCOUNTS.

We close up now our accounts with the past year, and start anew. He who fortunately has kept accounts of his work as we suggested a year ago, will find now in examining them much to interest him, and to enlighten his future operations. There is ample time now to take all matters connected with your operations into deliberate consideration, and to make out your plan of work for the coming season.

CARE OF STOCK.

There is nothing that we need now add to our injunctions under this head heretofore. The comfort of your stock is your true economy, and every animal, it is to be hoped, is properly protected from the inclemency of the weather. It is your part to make certain a regular supply of such food as is sufficient. Water, bear in mind, should be given often enough to prevent their drinking very largely at one time.

FARM BUILDINGS.

Any deficiency in your farm buildings will force itself upon your attention now, and you will have the opportunity to settle definitely a plan of such additions or amendments as you may need.

FENCES AND GATES.

Do not pass the leisure season without providing and preparing material for making new and repairing old fences. Have good gates wherever needed, well hung and well latched.

DITCHING.

This is a favourable time for laying off new ditches to be made in marshy ground, and for getting together stone or other material for filling blind ditches.

WINTER PLOUGHING.

As you have opportunity plough stiff clays to give them the advantage of the winter frosts and to forward your spring work.

MANURES.

Gather up all such matters as are fit to make compost which you may have neglected heretofore. Have good well rotted compost ready for your garden crops, flowers, &c. Stable and barn-yard manures should be hauled to the ground for which you design them, whenever convenient, and scattered at once.

GRASS LANDS.

Grass lands that it is desirable to improve without ploughing, may have seeds of any sort, as clover, timothy, red top, &c., sown, be top-dressed with any manure at command, or with guano or superphosphate, and thoroughly harrowed.

FARM IMPLEMENTS.

Take this time to make your selection of all new implements you may need. Have old ones put in thorough repair.

FIRE WOOD.

Do not fail to get fire wood sufficient for next winter cut before the winter closes.

SURFACE DRAINS.

Look to these and keep them open, that they may discharge freely the excess of water.

TOBACCO.

Dispatch diligently the stripping as seasons occur, and get this important work off your hands if possible by spring.

TOBACCO BEDS.

New seed beds may be made or sown this month should the ground be in good order for working. We would never fail to sow at the earliest time practicable. Burning is a laborious process and is very successfully dispensed with where guano is used liberally. Six to eight hundred pounds of guano to the acre is not too much, and with the advantage we have in the use of this fertilizer, we should always sow a great deal more ground than is ordinarily considered sufficient. The importance of a superabundant supply of plants cannot be overestimated.

THE VEGETABLE GARDEN.

JANUARY.

Little can be done in the Garden this month except to make due preparation to expedite the spring work, by preparing manures and getting them on the ground, preparing pea sticks and bean poles, provide seeds, &c. Dig ground for early crops.

PEAS.

Should the ground be in fine order the early Peas may be planted.

POTATOES.

Early Potatoes may also be planted as directed last month.

HOT BEDS.

Slight hot beds should be made to sow seeds of several kinds for early use. Cabbage seeds and Cauliflowers to succeed those planted in the fall, Lettuce Seed, Radish seed, &c.

In the States not subject to hard winter frosts, Carrots, Parsnips, Beets, Spinach, Lettuce, Radish, Celery, Parsley, Cabbage, Cauliflower, &c. may all be sown in the open ground.

FRUIT GARDEN, ORCHARD, NURSERY, &c.

There is little to be done in these, except in cases of failure to attend to our suggestions of previous months, and to make preparation for future work.

It is an historical fact that the notes of the Bank of England circulated for sixty-five years without any attempt being made to counterfeit them. In 1758, the first attempt at forging them was made by a linen draper in London.

Nitrates in Phosphatic Guanoes.

The *Journal d' Agriculture Pratique* contains a communication from M. Boussingault in relation to the presence of nitrates in phosphatic guanoes. These guanoes are found on islands and coasts where heavy rains are frequent, while the Peruvian guano comes from rainless regions. The latter is the dung of birds living on fish, and, as it is deposited in a dry, hot climate, no injurious fermentation takes place—moisture being essential to fermentation. Hence it is that while this guano is so rich in substances which afford ammonia by decomposition, very little ready-formed ammonia is found in a good sound Peruvian guano. Let it be moistened, however, and fermentation and the formation of ammonia rapidly takes place. If this fermentation was allowed to proceed, with sufficient moisture, and in a warm climate, and the fermenting guano was deluged occasionally with water to wash out the soluble matters, we should soon have left very little except the phosphates and other insoluble portions of the guano.

This is precisely what takes place on those guano islands where the guano is wet with rains. The dung of the birds was originally the same; but in the one case all its goodness has been preserved, while in the other rapid fermentation has taken place, the ammonia has escaped, and the soluble matters have been washed away, and we have little left but the phosphates (bones) and other insoluble matter.

Boussingault, however, has recently discovered nitric acid in several samples of these phosphatic guanoes—formed probably by the decaying nitrogenous substances attracting oxygen from the atmosphere, and he justly observes that in determining the value of these manures by analysis it will be necessary to examine for nitric acid—which has not hitherto been done.—*Druggists' Circular.*

MANURING FOR WHEAT.—A correspondent of the *Germantown Telegraph*, who reports his crop of wheat on a sandy loam at 24¼ bushels per acre, says, the land was ploughed up deep as soon as the oats were off, then rolled with a heavy roller drawn by two yoke of oxen; the manure was then hauled out and *spread as soon as hauled and allowed to lay on the surface* till near seeding time, when the field was again ploughed, but not so deeply as at the first ploughing; it was well harrowed, and the seed drilled in as nearly as possible at the rate of 1½ bushels per acre.

An avaricious man is like a serpent wishing to swallow an elephant.

Cement for Cisterns.

To the Editor of the American Farmer:

As quite as much depends on the quality of the sand used, and the process of manipulation, to prepare good hydraulic cement for constructing cisterns, bridges, or any other structures in masonry that are designed to resist the action of water, as upon the quality and quantity of cement used; and as the philosophy of the process is not generally understood, even by those whose calling requires almost a daily use of this invaluable material—the writer, by your permission, proposes—through the medium of your practical journal—to give its numerous readers, who, he infers, are generally those who seek solid, practical reading matter, a few hints on this subject, that will, when their correctness is tested in practice, be considered invaluable.

The quality and quantity of the sand used should vary according to the character of the work to be constructed, and it should in all cases be perfectly free from earthy particles, as they will prevent a direct contact of the sand and the cement, hence will have the effect greatly to weaken the mortar.

Sand is rarely found in nature sufficiently pure to make the best cement mortar, hence it will require washing.

When cement mortar is designed only for plastering a wall or other surface, to close the pores and render it impervious to water, the sand may be quite fine, as a less quantity of mortar will serve, and a closer and smoother surface will be obtained. He has found great economy and advantage in mixing sand of different degrees of texture or size and form of the particles, always using in the mixture as the coarser portion, as coarse sand as the character of the work will admit of using, and as the finest, that as fine and "sharp" as is obtainable.

The mixture of the various textures of sand should be thoroughly incorporated before adding the cement to it, which should only be done as needed, for the moisture in the sand will, when the cement is mixed with it some time before it is wetted and used, be absorbed by the cement, causing it to take a partial bond, which will greatly impair the value of the mortar.

When the mortar is required for use, only a small quantity should be wetted and mixed at a time, and as soon as it is thoroughly wet, it should be used, and when bedded, care should be taken to avoid stirring it again until it is sufficiently set to resist the press of the next course of the work. It is a common practice with masons, in using cement mortar, to mix too large quantities at a time, and then require the tender to work it constantly until it is needed, until the strength of the mortar is frequently entirely destroyed. If used as soon as wet and mixed, it will not shrink in setting, and will set sooner and harder than it will if it is worked too long.

Fine sand of uniform texture for cement mortar, makes a very crumbly, weak material, and for the purpose of building floors is entirely unfit for use, while it will answer for plastering cisterns in the ground. Cement work should never be exposed to frost until it has had ample time to set and become hard.

The effect of mixing sand of various texture for mortar, operates as in filling a box or barrel with stones of large size, filling the interstices with smaller ones, again with smaller and smaller until finally fine sand is required, and when all is well shaken and worked together, and the barrel appears to be full, it will be found that it will hold a large quantity of water, much more than it would had the interstices between the particles of sand been filled with cement.

The experience of the writer in the use of hundreds of barrels of cement is, that there is often a great difference in the quality of the different packages of cement of the same cargo or lot. His practice is, in using it on important work, to test every barrel by drawing a sample from each, by means of a flour inspector's tryer, by inserting which in one head and piercing it to the opposite head, a fair sample may be obtained. He wets the samples without sand and allows them to set for 24 to 48 hours; the best is then selected for the more important portions of the work.

By a close observance of the above, good and satisfactory work may always be effected.

Very respectfully yours,

J. WILKINSON,

Landscape Gardener and Rural Architect.

Baltimore, November, 1860.

Water on Stock Farms.—Mr. Strawn, the great Illinois farmer, gives the following method in the *Farmers' Advocate* for keeping water on a stock farm: Dig a basin five or ten rods square and ten feet deep, upon a high knoll. Feed corn in the basin to your hogs and cattle until it is well puddled by the tramping of their feet, which will make it almost water-tight. He says the rains of a single winter sufficed to accommodate several hundred head of cattle, and that it had been dry but once in twelve years.

He that knows useful things and not he that knows many things is the wise man.

New Ideas of Propagation by Cuttings, Grafting and Budding.

The following from J. M. Poole, of Del., to Thomas Baynes, of this city, will be found curious and interesting to cultivators of fruits and flowers, especially to grape growers.—EDITOR.

I will endeavor to describe to you what I saw and learned from Mr. Cornelius, of the firm of Cornelius & Baker, of Philadelphia, makers of chandeliers, &c., of the manner of propagating, budding and grafting the grape vine. Mr. C. is a practical and thinking man, who devotes much of his leisure time to the cultivation and propagation of choice fruits, being struck with the uncertain results of the old manner of increase, he has applied the mechanical knowledge acquired in his business to the solution of a problem which has bothered gardeners from the beginning of gardens to the present time, with a success that is marvellous; giving what was before more the effect of chance, all the precision and certainty of a mathematical problem. It has long been known that there was no difficulty in rooting cuttings when the callus on the wounded or separated end was once formed, but that to form this callus was the difficulty, a large portion of the plants damping off, as the gardeners term it, or drying without forming a callus at all. Now he has a manner whereby he, in four days, forms a callus without putting them in the ground, which in the old way, with evergreens for instance, required four months to do. It is as follows: the implement he showed me was a soft baked earthenware cylinder, three or four inches in diameter and about a foot long, closed at one end, made thin and so soft as to be porous, into which he put his rose, evergreen or other cutting, as soon as separated from the stock, thrusting it full. After filling two of these, he laid them down on damp sand, their open ends together, in the heat of his green house, piling the wet sand over them, where they were allowed to remain till the operation was complete, say four to six days, depending upon the heat of the weather, after which they were taken out. This process, you will observe, was the preparatory process, merely for the purpose of forming the callus, for after they are taken out they were put in sand to root, much in the usual manner, except there is much novelty in his striking pot, which I will describe after describing his sand, and manner of preparing it. I should have said that these earthen pots are saturated with water before use, so as to maintain a moist atmosphere around and among the cuttings, being aware how much water a newly baked soft earthen put will absorb and how long it will retain its moisture.

The sand Mr. C. uses is the coarse sand gathered from runs and water-courses along the road, much of it as large as mustard seed, thoroughly washed to free it from every particle of loam or other matter than sand itself, even removing the finest particles of that, thus making it a medium to retain moisture and heat alone, without, from itself, affording any nutriment to the plants; on no account to use the common beach sand, which may and often does contain salt, which is fatal to young plants. Now, the principle he had in view, in contriving his striking pot, was to make an arrangement that would at all times preserve the sand of a uniform and proper degree of dampness, while at the same time air would be allowed access to the roots.

We have all of us observed that in the usual manner of striking roots to plants in a bed of sand, the whole surface in which the cuttings are put are exposed to the action of the air and soon becomes dry, and it is necessary frequently to water it, thus of necessity subjecting the plants to extremes of wetness and dryness—manifestly unsuited to the proper state to best develop the results aimed at. Now this being the evil, if any implement can be contrived that will retain a constant, uniform and proper degree of moisture in the sand, and at the same time freely admit the air to the roots of the plants, you will have accomplished an important invention, that will insure certainty in rooting, provided you place it in a proper temperature.

The striking pot he makes as follows: Suppose an earthenware pot—baked soft as a flower pot is baked—eight inches in diameter by four inches deep, having a ledge or projecting flange about one and a quarter inches wide around it, and about half an inch below the top and open end of the pot, the bottom of the pot being rounded on its inside or highest in the middle, so as to insure the water being directed to the circumference, when the surplus is allowed to escape through small holes—the thickness of material in this pot being similar to that of a flower pot. Now the circumference of this pot above the projecting flange has openings cut through it down to the flange as close together as they can be made without destroying its strength, for the purpose of laying the cuttings therein in a horizontal position.

To set this at work, fill the pot with sand as high as the bottom of the notches, then lay in your cuttings, put on the upper ring, and fill the

whole with sand, give it one good watering and set it in the shade of your green-house, and you can root anything that will root.

I have been particular in describing this thing, because I saw what astonished and surprised me done with it, that is, thousands of rooted plants made from the soft and immature extremities of this year's growth of the Rebecca and Delaware vines—even the foot-stalks of the leaves covered with roots. Little pieces of the ends of the laterals, as soft and watery as a nasturtium, not an inch in length, beautifully rooted. So much for the striking pot. I also saw these extremities of the laterals, as soft and green as could be, budded on other vines, where they had formed union, as perfect as possible.

But the crowning accomplishment of all was his new philosophical manner of grafting and budding (if I may so call it) the grape—always, in the old method, a difficult and uncertain operation, but now made easy and positive. As this operation, on account of the bleeding of the vine, can only be done when the vine is in leaf, it is necessary to prepare and preserve the cuttings of last year's wood with which you intend to operate, and Mr. C. does it in this way:—For grafts or simply for cuttings to be rooted in the spring the manner of preservation is the same, but the shape in which they are cut is different. At the fall of the leaf at approaching winter the vines are trimmed, and such buds as are desired to be saved for propagation, after being cut to their intended shape, are packed away in damp sand in porous earthenware vessels, previously saturated with water, and stored in a cool cellar, where they will keep an indefinite time if not allowed to get dry or warm enough to start the buds.

Mr. C. lays great stress and claims great advantage from his peculiar manner of cutting these cuttings and grafts, which shapes he has deduced from his theory of the circulation of the sap, formation of leaves, wood, and roots. Being no gardener, but merely a mechanic turning his attention to gardening, he was led to inquire how it was that the sap was caused to flow and circulate throughout the whole system of the plant, and quickly rejecting the old idea that the roots were the active force that propelled the sap to the topmost branches of the highest trees as absurd, conceived that there must be a balance of forces, as that of a syphon, wherein the ascent was represented by the pores in the hard wood, and the descent by the passage between the hard wood and the bark. That is, the upward flow of the sap took place through the wood and formed the leaves, and the downward flow between the bark and the wood, and through the bark, forming and depositing additions to the wood and making the roots. That is, the roots being formed entirely by the downward flow of sap, he so prepared his cuttings in the fall for propagation in the spring as to have the bud from which the growth was to proceed at the very bottom of the cutting, and leaving above it as much length of wood as there was between two contiguous buds. This, you will observe, is different from what we have been used to, and that it is a good way to do is evinced from the fact of his unparalleled success, having succeeded in this way in growing ninety-nine cuttings of every hundred, even of the most difficult to propagate—the Delaware.

Acting still upon the idea that it was the downward flow of sap that formed the roots, Mr. C. has introduced two new and beautiful methods of grafting the vine, which, in his hands, has worked like a charm. I saw a Delaware cutting, grafted this spring, upon an old strong vine that had made quite a hundred feet of growth, and at the junction was not less than an inch in diameter.

These grafts are preserved for use till the leaves are formed, as the cuttings are preserved—that is, in damp sand in the cellar—but instead of being cut close to a bud, they are cut so as to have the bud in the middle of the length, selecting such pieces as have a natural bend, with the bud on the convex side. At the proper season for grafting—that is, any time the vine is growing—tie a piece of twine tightly around the stock at the place in which you wish to insert your graft, so tightly as to interrupt the downward flow of sap between the wood and the bark, then with your knife cut a sloping cut through the bark, and into the wood of the stock above and below the ligature—the distance apart of these cuts being equal to the length of the graft—into which cuts, after sharpening the ends, insert each end, taking care that the barks coincide. That is, if I can make my meaning clear, you interrupt the flow of sap of the stock through its natural channel, and substitute therefor an artificial channel, (the graft,) through which the return flow of sap must take place, the bud of the graft being so placed that in its growth it will not grow in contact with the stock. The junction of the graft should be waxed.

The effect of this operation is immediate and astonishing. The whole downward flow of the sap is forced through the small graft which unites and perfects its junction at the lower end, forming its roots (if I may use the expression) in the stock certainly and rapidly.

I am afraid that I have not been able to explain this beautiful operation so that you can understand and practice it, and would, if I had the skill, illustrate it by a sketch, but that being out of the question, I will send you, together with a sample of his propagation pot, as soon as the potters get them made, a specimen of this kind of grafting; also, of another kind, contrived by the same party, that is, neither budding nor grafting, but budding with a graft, which is equally successful and beautiful as the before described operation.

I saw also grafts or buds of the vine of this year's wood, soft and succulent, inserted and growing, the success depending upon arresting for a few days previous the downward flow of the sap in the bud, so as to store therein an excess of the material out of which the roots are formed.

This same process of arresting the flow of sap is pursued with young trees intended to be transplanted—the idea being to store therein the material to form roots after transplanting, instead of allowing them to form their roots in the soil to be broken or destroyed in the act of removal. It is well known that it is this arrest of the downward flow of the sap by the quince stock that makes dwarf pears bear earlier than standard. Acting upon this, by the simple process of binding a piece of bass bark, in the latter end of July, around the body of the tree, near the ground, he has made the pear growing on its own roots bear its fruit at as early an age as the dwarf tree, without shortening its life as you do by uniting it with the quince.

I have made this communication too long to read; when you get tired lay it by and try again some other time; I could not say what I had to say in fewer words. Yours truly,

J. MORTON POOLE.

MANAGEMENT OF CREAM IN COLD WEATHER.—For some reason not yet known, cream skimmed from milk in cold weather, does not come to butter when churned so quickly as that from the same cow in warm weather. Perhaps the pellicles which form the little sacs of butter in cream, are thicker and tougher. There are two methods of obviating this trouble in a great degree. One is to set the pan of milk on the stove, or in some warm place, as soon as strained, and let it remain until quite warm—some say until a skim of cream begins to form on the surface. Another mode recommended, is to add a table spoonful of salt to a quart of cream when it is skimmed. Cream thus prepared will generally come to butter in a few minutes when churned. It is thought the salt acts upon the coating of the butter globules and makes them tender, so that they break readily when beaten by churning.—*Maine Farmer.*

[For the American Farmer.]

Cheap Cisterns and Cheap Filters.

Instead of incurring the great expense of excavating wells, stoning them and supplying expensive pumps for obtaining water for the ordinary purposes of a farm house or barn, a much cheaper and more satisfactory arrangement will be found in the use of my cheap mode of constructing cisterns and filtering the water. A cistern of the dimensions that I shall describe will hold one thousand gallons, will cost but eight dollars, and its capacity may be doubled for less than fifty per cent. additional cost. One of the size above named will be found sufficient for farmers' families generally, and will insure soft water, which is rare in wells.

Directions for Excavating Cistern.—Stake and line out a plat near the building 8x18 feet; excavate this one foot in depth; then set the lines in 18 inches on all sides; then excavate all within the lines, or 5x15 feet, to the depth of 4 feet in the middle, making the middle level some 9 inches in width, sloping the banks on all the sides and ends to the lines last placed, which will make a section of the pit either way V shaped, except that 9 inches of the bottom will be level.

In digging the banks use care not to disturb the soil not thrown out. When the digging is completed, plaster the bottom, the level part, with a good coat of cement mortar, and place a board on it to stand on to do the balance of the work, cutting the board in two equal parts before laying it on the mortar. This done, plaster the entire surface on the ground to the lines last named, then remove one-half of the board and stand on the balance and build a 4 inch brick wall across the pit, about in the middle, laying the bricks, which should be *soft*, (common salmon brick,) in cement, but plastering neither side.

Lay the wall to the line, then remove the balance of the board and put a coat of mortar where it lay. The cistern is now complete, save the covering; this may be done by laying plank over the whole bedding, then on the surface of the first excavation in mortar, or splitting logs from the woods and laying them flat side down, and closing the joints with mortar. The pump pipe should be laid into one end and the leader pipe from the house gutter laid into the other before it is covered. This done, return earth enough to cover the surface at least one foot deeper in the middle than the surrounding ground; level it off neatly and sward it, and you have a complete filtering cistern for eight to twelve years.

JOHN WILKINSON,
Landscape Gardener and Rural Architect.
Baltimore, Md., November, 1860.

Feed for Horses and Cattle.

The Nutritive Property of Substances which contain a large amount of Carbon, for Feeding of Cattle, and particularly the Working Horse.

BY M. J. MAGNE,
Prof. of Agriculture and Hygiene, Imperial Veterinary School, Alfort.

M. Magne, in his work on agriculture and hygiene, has endeavored to prove that the substances which contain the greatest amount of carbon are more required by those animals that are employed in severe work than by those that are idle, or merely fattening. Further, that the rations which are generally given to post-horses contain more carbon than those given to oxen for fattening them.

This opinion is contrary to that which is generally received, namely, that the substances which are highly nitrogenous are better adapted for working animals, while those which contain the largest amount of carbon should be reserved for such as are fattening. It is therefore not surprising that a distinguished colleague should maintain that this opinion is erroneous, and that, far from giving vigor to the animals, carbonaceous substances render them indolent and feeble. Under their influence, he says, they rapidly increase in size, by the accumulation of fat in the tissues, but, at the same time, their vigor diminishes, and they become less fit for active service; particularly for fast work. This is a consequence of fattening, but fattening does not necessarily follow on a system of feeding upon substances in which carbon predominates. Feeding on these substances only increases the size of the animal, and produces atony, and fattens only when the animals are kept in idleness, and make no use of the large quantities of carbon and hydrogen they take in as food. Fattening is principally dependent on the care that is taken of the animals, and the way in which they are stabled. It is the absolute rest they enjoy which gives size to the ox, and an abundant secretion of milk to the cow. As to their provender, it is less rich in carbon than that given to animals which are submitted to hard work. Such food has nothing within it in particular, except it contains a large quantity of water; while that which gives to horses the necessary strength and vigor for fast action, and for drawing heavy loads, must contain those elements of combustion which are required by the respiratory organs when under great exertion and fatigue. This is easily demonstrated. Of those rations which are given to fattening cattle, and of which analysis has been made, the proportion of carbon to that of nitrogen was from 260 to 291 of carbon to 100 of nitrogen; while those advocated by M. Warnes, who with a mixture of linseed and barley formed rations, contained 469 of carbon to 100 of nitrogen. These were found too strong to produce good meat, and to excite the appetite in animals gorged with food and weakened by rest. Rations are considered very good when the proportion of carbon is 175 to 100 of nitrogen. In oil-cake, which is so advantageously used for fattening, the proportions are 160 to 100, while in meadow hay there are 330 to 100, and in oats 334 to 100. Rations which are generally given to animals destined for the butcher, would not suffice for horses doing even slow work. By the quantity of carbon contained in oats and hay, we are able to estimate the difference in the food of the post and the race-horse, as compared to that of the ox fed for the butcher. That of the horse contains at least 327 of carbon to 100 of nitrogen. This amount of carbon and nitrogen is necessary to keep up the excited respiration during the daily task of four or five hours, fast work. Notwithstanding the richness of the rations in carbon, post and race-horses are never very fat, but they have a great amount of vigor and endurance. Experiments show that whenever, either for economy or otherwise, lucerne and barley-cake are substituted for meadow hay and oats, in the same proportion, horses cannot do their work; and that rations in which the carbon to the nitrogen is only 208 to 100 are not sufficient for post-horses; but when the carbon amounts to 320 to nitrogen 100, these will sustain them for an indefinite period. How does the first act? It must be in the difference of the composition of its constituents, there being an excess of nitrogen in them.

On another occasion, 3 kilogrammes of barley were substituted for 3 of oats, the hay being in both cases the same (9 kilogrammes.) The first contained 262 of carbon to 100 of nitrogen, the latter 328 of carbon to 100 of nitrogen. The post-horses to which this substitution was given were unable to do their work.

The following is from a report made by M. Leblanc on the horses of the Imperial Omnibus Company. They were in good condition, and did their work well on rations consisting of meadow hay 2 kilogrammes 50 grammes, 7 kilogrammes of oats, 5 kilogrammes of straw, used as bed; while others were weak, without vigor, and unable to perform their work on cut hay 2 kilogrammes 500 grammes, bruised oats 4 kilogrammes 750 grammes, bruised barley 2 kilogrammes, cut straw 500 grammes, and straw for

bed 5 kilogrammes. In the first, the carbon is in the proportion of 324 to 100 of nitrogen, in the second 238 to 100. In some experiments made in 1858, on the cavalry horses, which it would be too long to transcribe, it was proved that barley and lucerne instead of oats and hay caused the horses to lose condition, and rendered them less able to do their work. This result could not be attributed to anything else but the less amount of carbon in the barley and the lucerne. In all the regiments subjected to these experiments it was acknowledged that the horses did not lose flesh when fed on barley; on the contrary, some were found to gain it, although not so fast as those that were fed on oats; but there was a loss of vigor in them, and they were slow in their paces, and perspired much in their work. These experiments were discontinued for fear of worse consequences. In all of them, 5 kilogrammes of straw were allowed for litter, but which is always partly eaten by the horses. Barley has often been given to the horse, but always with unsatisfactory results, unless it is combined with other provender rich in carbon.

M. L——, farmer, in the Camargue, has substituted 3 kilogr. 500 grammes of barley for 3 kilogr. of oats, allowing in both cases straw *ad libitum*. On this food he has kept his horses and mules since 1855. The straw is very rich in carbon, and contains very little nitrogen, and therefore constitutes with the barley a very good provender. Supposing that the horses and mules consume 8—10 kilogr. of straw, they would receive 395 grammes of carbon to 104 of nitrogen. In the first ration, the proportions of carbon are 434 to nitrogen 100; in the second, 315 to 100. They thus receive as much carbon as when fed on oats and meadow hay; but the drivers assert, that when fed on oats they were more vigorous, which tends to prove that the energy of animals is in proportion to the carbon they take in their food.

Carbonaceous substances are as necessary to man as they are to animals, when they have to perform laborious work. Thus workmen in the field, navigators, &c., value their diet in proportion to the fatty matter it contains. They care but little for lean meat, however delicate it might be. What they like is fat meat, or, in its absence, vegetables well impregnated with fat or butter. They eat, with evident pleasure, such fat bacon as would disgust the sedentary inhabitant of the town.

This universal use of fatty matter for our food does not depend on caprice, but on an imperious necessity of our nature. The desire for it, when general, is only the expression of this necessity.

The author considers the question, whether the maladies, from which sheep and cattle suffer, have any relation with this subject of diet, and states that a certain malady in sheep (*sang de rate*) has been more frequent since the system of artificial pasturage has been introduced, and leguminous plants have been substituted for the gramineous and aromatic herbs; and, in fact, that it prevails more in those places where the meadows have been ploughed up, while it suffices oftentimes to diminish its ravages to remove the flocks to loamy or marshy land covered with plants belonging to the graminea, or to depasture them on young rye, barley, or oats.

As to pleuro-pneumonia, a disease which has made such ravages amongst cattle of late years, it is without doubt more common than formerly. It is more fatal also in the stables of the distillers and milkmen, where the animals are fed on beet-root and grains, which have a greater proportion of nitrogen than carbon. If we bear in mind that the graminea are richer in carbon than the leguminosæ, and that, when cattle are depastured on the natural grass, they fatten both sooner and better than when depastured on artificial meadows, such as clover and lucerne, may it not be presumed that diet exercises a great influence on the development of certain diseases in cattle? and that that diet in which nitrogen is superabundant contributes either to their production in some way or other, or predisposes the animals to the contraction of them?

This question is, however, a very complicated one, and it would be very dangerous to come to the conclusion that the food which constitutes so great a part of the wealth of the agriculturist is detrimental to the health of our domestic animals, on account of the abundance of nitrogen it contains. But at the same time it is most important to discover the truth, and to ascertain whether these artificial foods are the cause of certain maladies which were unknown to the ancients.

The author next examines the question, whether the amount of carbon required varies according to the breed of the horse. But, before solving this, he finds it necessary to dispose of the quantity of carbon required by the post-horse. It is well known, since the time of Lavoisier, that respiration uses up the carbon and hydrogen contained in the food, thus becoming the source of animal heat; also that the consumption of these bodies, considered either in the different breeds or in each particular animal, in a state of health

or disease, and when at rest or in motion, is always in proportion to the activity of the respiration. It is under the influence of strong exercise that the large amount of carbon which is contained in meadow hay and oats is appropriated. MM. H. Bouley and Lassaigne have found that the loss of carbon during rest is 2200 grammes, and 4800 when in exercise, in twenty-four hours; and other chemists have come to the same conclusion. M. Alibert admits, in his learned memoir on alimentation, that the loss of carbon in twenty-four hours, in a horse weighing 500 kilogr., amounts to 2400 grammes during repose. To appreciate the influence of exercise, he has experimented on man. A man raised a weight of 10 kilogr. to the height of one metre from the ground without letting it fall, and lost carbon at the rate of 58 gr. .068 in the hour. The same individual, on getting out of bed in the morning, and before having taken any exercise, emitted carbon at the rate of 10 gr. 8.40 in the hour.—The experiment lasted ten minutes. The weight was lifted five times, the exertion being very considerable, and the man was in a violent perspiration. During this experiment, which was made with the greatest care, the consumption of carbon was five times greater than when in a state of rest. In an old horse the respiration became increased from 12 and 13 to 27 and 28, during work; in a mare from 16 and 17 to 44 and 46; in a gelding from 17 and 18 to 36 and 40, after half an hour's trotting. The first two were worked at the plough at the end of January, the weather being rather cold; the last was ridden by a man of ordinary weight, at the beginning of April, the weather being mild. From this it will be seen, that the respiration is nearly tripled during exercise. The expiration of carbonic acid is not increased in proportion to the number of expirations. If the quantity be 4.1 per cent. in 12 expirations per minute, it is only 3—3 per cent. in 24 expirations, and only 2—9 in 48; but although the quantity is less in each expiration, the total in a given time is more when the respiration is accelerated.

The hydrogen contained in the food, like the carbon, is consumed during respiration, and forms water, which is exhaled by the tissues and cannot be easily estimated. The loss of carbon by respiration is variable, and in proportion to the more or less rapid exercise and its duration, and without exaggeration it might be taken at one-third more; as, for instance, a horse that emits 2400 gr. in 24 hours in the stable, would lose at work 100 gr. more per hour, and taking 10 hours' work would be 1 kilogr. These 2400 gr. correspond to the quantity contained in the food, the ration being composed of 7 kilogr. of oats and 7—500 of hay. We know that these carbonaceous substances contain 176 per cent. of carbon, and the neutral bodies, as starch and sugar, contain 44 per cent.

Post-horses which work only a few hours a day consume more carbon than horses at slow work, working 10 hours a day. The latter do well on rations that contain less carbon than the former. On the other hand, horses that have to undergo violent exercise, lose flesh very fast, although the exercise be but of short duration. Such is the case with race-horses when training. The question may be asked, whether all the functions are not equally increased by exercise, and the loss of nitrogen and the phosphorus be not increased also. The answer to this is, they are not all equally increased by exercise; on the contrary, some are decreased; as, for instance, the secretion of milk, the urine, and the semen. A horse that perspires much stales less, and consequently loses less nitrogen and phosphorus by the kidneys. It is true, that during rapid progression, and necessarily accelerated respiration, accompanied by abundant perspiration, the action of the kidneys is lessened, for the skin then emits a certain amount of nitrogen and other mineral substances; but this does not establish the balance, for at the same time the skin also gives off a quantity of gaseous matter, amongst which carbonic acid forms a large item; but this acid is partly derived from the action of the oxygen of the air on the carbon of the blood. The inference from these considerations is, that animals lose more carbon and less nitrogen when at work than when at rest, and hence a large quantity of carbonaceous substances are necessary in their food to supply the loss.

In the experiments made on cavalry horses, it was found that the substitution of barley for oats was less detrimental to the light cavalry horses than to the large horses of the heavy cavalry. In the East, barley suffices to keep horses in good condition, while oats cause in hot countries, at times, serious inconvenience to them, generally rendering them too vigorous, even when given only in quantities which would be insufficient to sustain horses in cold countries. In America, horses are fed on maize and straw. In France, Spain and Italy, maize is frequently substituted for oats. In Provence, horses and mules are fed on barley and straw. It is a general opinion, and a well-founded one, that to render horses vigorous, they must be fed on oats—no other grain can be compared with it. The

following is the composition of some of the cereals:

	Carbon.	Nitro'n.
Oats.....contain	324 to	100
Buckwheat..... ..... "	168 to	100
Barley ..... "	152 to	100
Rye..... "	95 to	100
Wheat..... "	55 to	100
Beans..... "	42 to	100

In meadow hay, and the leguminosæ, the proportions are, carbon 330 to nitrogen 100.

	Carbon.	Nitro'n.
Lucerne.....contains	182 to	100
Clover..... "	182 to	100

It would be a difficult task to ascertain the exact quantity of carbon and nitrogen required by the herbivora, but they all do well on rations consisting of meadow hay and oats, while horses are enabled by this food to do the greatest amount of hard work; and moreover, they never get tired of such diet. We may therefore take it as the standard of what the diet of horses should consist.

It is important, in the substitution of one kind of provender for another, to study the chemical composition of each, so as to provide animals with those elements which are necessary to their constitution, and to the work they have to perform. Nor can it be questioned that many diseases, the causes of which are at present unknown, are produced by the food, and consequently a knowledge of the chemical constitution of the alimentary substances is of very great interest.—*Recueil de Medecine Veterinaire et Pratique.*

Vegetable Tallow.

The Agricultural Bureau of the Patent Office has received specimens of vegetable tallow known to botanists as *myristica sebifera*. It comes from a nut about the size of a nutmeg, full of meat, which being melted, becomes a yellowish tallow, excellent for candles. The plant is a native of Central and South America, and naturally attains a height of ten or twelve feet; it carries herbaceous flowers from July till September, and makes so profuse a secretion of oily matter, that this may be readily obtained from it, in the form of fat, by immersing it in boiling water. H. L. Clarke, Esq., United States Minister at Guatemala, writes that he has no doubt that this article might be collected and exported at considerable profit. It grows in immense quantities in the southern departments and in Verapaz. It is susceptible of such high purification as to resemble the finest sperm, is solid, and quite as transparent. A sample of this production, in the nut and in the tallow, is now among the numerous collections at the Patent Office. The cultivation of it from the seed will be tried at the horticultural garden.—*Scientific American.*

Thorough Farming.

The time-honored maxim that, "what is worth doing at all is worth doing well," true in almost everything, is especially true of farming. In any department of industry, extra care in doing a thing is always repaid—but in farming, this extra pains always produces a much greater proportionate benefit. It requires a good deal of expense to produce even a poor crop. There is the same, or nearly the same, expense in each case, for ploughing, seed, sowing, or planting, and the same interest on value of the land and wear and tare of machinery. All these expenses have to be borne, even to produce a small crop. Now, then, when the farmer has done so much, let him remember that every particle of manure applied, and every extra attention given to the crops, especially hoed crops, adds directly to the product, and consequently to the profits. In fact, you are constrained by all that you have already done, to do still more, in order to receive the benefit of it. If you have ploughed thoroughly, you ought certainly to manure liberally, and tend carefully, so as to get the greatest possible benefit of the ploughing, seed sown, and labor of sowing it. Every step renders it more and more necessary that everything should be done well; for there is more and more at stake. In harvesting, especially, you need to be prompt and thorough. Often, indeed, a great part of the trouble and expense bestowed during a whole season, is lost for want of a little thoroughness at the last. We have seen hundreds of bushels of potatoes wasted, merely by digging them a week after instead of a week before the general "freeze up;" and it costs more to dig the few that were left in good order, from the wet and mud, than it would to have secured the whole crop in good order, earlier in the season. We have seen fields of corn half destroyed by being left out in the fields most of the winter, and yet costing nearly as much to secure the half which the mice and weather had not destroyed, as to have secured the whole crop in the barn or crib. And so of many other crops. It never costs more, and generally less, to harvest a crop at the right time, than it does after.

So, too, in regard to fences. The most miserable fence we ever saw, which was really no fence at all, generally had three-fourths enough rails, and sometimes enough, if well laid up, to make an excellent fence. With a long heap of rails, twisted and misplaced every way, to serve as a fence around a lot, a man may easily spend more time in one season in running to turn out the pigs or the cattle, and patching up the holes or

putting on one more rail on the lowest places, than would be required to take the fence down from one end to the other, and lay it up in a substantial manner and stake and wire it. But if you pursue the "make do" system, you will have the cattle breaking the rails, destroying fifteen or twenty dollars' worth of crops, and perhaps injuring themselves; and in the fall you will have a poorer fence than in the spring, with a pretty certainty that if you were now to make a good fence it would not keep in your cattle after they have become so enterprising from their summer's experience.

The same in regard to noxious weeds. The best way is, by all means, to have no half-way work, but to thoroughly destroy them in one year. For instance, as much labor is often expended on Canada thistles in three years, merely to keep them from spreading, and not half doing that, as, if well applied, would, in one year, destroy them root and branch. Really, the cheapest plan would be for the people of a whole State to unite on some one year to thoroughly exterminate this and other pests; and if more came up in succeeding years, from seeds dormant in the ground, they could easily be got rid of. But we reckon it won't be done, just yet, at least.

The above views are so self-evidently true, that it is a wonder that all are not more thorough in their farming. (We wonder that we ourselves are not, when we see the beauty of it so clearly!) But then, it requires an immense amount of labor. There are so many things to be seen to, that if a man resolves to pursue an improved course of farming, it seems as if nature, and everything else, was conspiring to trip him up at some point. If he begins to underdrain, the first thing he knows his fences are rotting down and the cattle are in the corn field. When he stops to make fence, besides not getting his ditching done, the weeds get the start of him. The thistles get into blow, or at least are spreading vigorously at the root. The daisy gets into his meadow and the charlock into his oats; and when he stops to attend to these, as he should, whatever else he may leave undone, the chances are that his potatoes don't get hoed that year, beside a multitude of other things which claim his attention, but which he has to neglect. Altogether too many farmers are almost beginning to despair of the possibility or practicability of being thorough in more than one or two points at once. At any rate, it is pretty certain that most who try to be thorough are so only in *streaks*—which we must say is apt to give their farms a rather *streaked* appearance, besides making the farmer feel rather streaked withal! But even this is better than being slovenly throughout.

The trouble is, most farmers try to get through the season with too little help. Hardly any expend nearly as much labor upon their land as they should, even for immediate profit. The increased value of large crops, instead of small ones, will pay for a good deal of manure and labor, besides leaving the land in so much better order for future service. In regard to noxious weeds, the higher market value of a clean farm will pay for a good deal of care in keeping them out; and, as we remarked at first, large as the expense of thorough tillage may seem, in the aggregate of the whole farm, the additional expense over ordinary cultivation is proportionably but a small part of the whole.—*Rural N. Yorker.*

Animal Food and Bread.

A paper was recently read before the London Chemical Society by Dr. Gilbert, on the composition of the animal portion of human food, and on its relations to bread. The general conclusions were, that only a small proportion of the increase of a fattening animal was composed of nitrogenous matter; that from five to ten per cent. only of the nitrogenous matter of the food was stored up in the body of the animal; but that the amount of fat stored up was frequently greater than the amount supplied in the food, despite the loss incurred in the maintenance of the respiratory functions. Hence, the comparative value of fattening foods was proportional rather to the amounts of respiratory than of assumed flesh-forming constituents. It was calculated that in those portions of the carcasses of oxen actually consumed as human food, the amount of dry fat was from two to three times as great as the amount of dry nitrogenous matter; and in the eaten portions of the carcasses of sheep and pigs more than four times as great. By substituting for the above proportions of fat, their respiratory equivalents in starch, so as to allow of a comparison between meat and bread, the ratios become six or seven to one, and eleven to one respectively. From various determinations made by a number of experimenters, it appeared that in wheat bread the ratio of starchy to nitrogenous matter was six or seven to one; so that in bread the proportion of animal flesh-forming constituents to respiratory constituents was greater than the eaten portions of sheep and pigs, and quite equal to that of the eaten portions of oxen—a conclusion altogether opposed to the prevalent notions on the subject.—*G. Far.*

Managing Cows for the Dairy.

The following, which we find in the *American Stock Register*, is a good article on the subject, according to our view of it. There is much practical sense in it, the writer going at once into the merits of the subject. We should like our experienced dairymen to give us their views on this matter. Here they ought to be perfectly at home —for, if anything about a farm will show system and experimental knowledge, it is the management of dairy cattle, especially in Eastern Pennsylvania, where the business is conducted so extensively.—*Germantown Telegraph*.

"I propose to give some hints for feeding cows while giving milk. It may be more profitable to individuals to so feed as to produce the largest amount of milk or butter without regard to the continued usefulness of the animals as breeders or even milkers, but the country thereby loses the services of many fine breeding animals. This will more particularly recommend such feeding as shall promote a flow of milk only so far as is compatible with the continued usefulness of the animals, both as breeders and milkers.

For summer feeding, good pasture with two quarts of meal per day given in two feeds, and made from one-sixth corn, one-sixth rye, and two-thirds oats, will be found more profitable and healthy than grass alone. If the pasturage is short, a great assistance will be derived from green crops, the best is fodder raised from sowing thickly evergreen, sweet or sugar corn.—Large crops of this may be obtained either for summer feeding, or to be cured for winter feeding, with comparatively small expense, and where roots are raised with difficulty, this will be found the more profitable, and from a number of years' experience with both in raising and feeding, I think the former to be preferred in most localities. It will produce richer milk than any roots except yellow carrots.

For winter feeding, good clover hay and corn fodder, meal mixed with bran shorts, middling or canail, (the three latter names being given in different sections to nearly the same article and varying in different mills from a very rich to a very poor feed.) Meal from a number of varieties of grain will be found more healthy than from any one kind. That from Indian corn will usually give a large quantity of rich milk at first, but in most cases will soon induce an excess of flesh or fat and a corresponding decrease of milk. Many valuable cows have been rendered valueless for milkers by one season's high feeding on Indian meal. Cotton seed and oil meal will have much the same effect. Sometimes good cows will show an inclination to take on fat and increase in milk on the commencement of excessive feeding on rich feeds.

For a cow not in calf, or the first six months she has gone with calf, four quarts per day of one-half middlings, and the oil meal from equal quantities of corn, rye and oats, will be as much as the average of cows will bear and prove lasting and profitable; it should be given on cut fodder, or cut hay, wet with hot water so as to slightly steam, and fed in two feeds per day.—Where roots can be raised with profit they will be found healthy, and will keep up a better flow of milk than most other kinds of feed, but they should be fed with other kinds. Wortzel and beets will increase the quantity, but will not improve the richness, though the flavor will be benefitted. Yellow carrots will give less increase in quantity of milk, but they will improve both the quantity and quality of the butter, making it finer flavored and higher colored. Roots fed in large quantities alone will induce too large flow of milk at expense of condition. One feed of roots and one of meal per day will prove better than either alone. Middlings or bran should be omitted when feeding roots, as both are loosening and may scour. Where there is a tendency to this, oat meal is the best feed, and it may be found better to scald it.

Regularity of feeding is of the greatest importance for all animals, and is never more so than in feeding cows; they should have constant access to salt,—rock salt is the best, and Turk's Island the best substitute; if they have it always before them, they will never receive injury from over eating. They should be watered often, and with water not too cold; the better plan is to have such arrangements as will give constant access to it, though if regularity is observed, the animal's appetite will soon accommodate itself to stated times. While the aim should be to make cows eat all the hay or fodder they can, they will fall much short of it if they are allowed to waste or are fed more at once than they can eat clean in a reasonable time. Feed oftener and less at a time, and they will eat much more in the aggregate and waste much less. If it is found the supply given is too large, it should be removed as soon as the animal has become satisfied, as nothing destroys the appetite sooner than rejected food lying in the manger. For successful winter dairying, a good light, airy and comfortable stable is indispensable; care should be taken to keep it clean and well ventilated, guarding against currents of cold air blowing on the cows, and keeping their apartments too close

and hot. Close, hot stables, foster more diseases than exposure to cold.

For the treatment of sickness, blood letting and purgatives should be discarded for kind, good and gentle nursing. Many fine animals have been sacrificed to doctoring that would have been useful for many years had nature not been called upon to combat both disease and debilitating medicines. Instead of purgatives give injections of tepid water or Castile soap suds and bran mashes. If an animal is sick, shorten the feed instead of tempting the appetite with stimulating foods. Keep them quiet, make as comfortable as possible, and otherwise trust to nature if any doubt as to what should be done. This opinion is formed after many years' experience with all kinds of animals where this way has proved by far the most successful after a thorough trial of both kinds of treatment."

Deterioration of Manures by Fermentation.

It is a prevalent impression with the majority of farmers that a complete fermentation of farmyard manure should take place before it is applied to the land; and a most common practice is to suffer it to ferment until the fibrous texture of the vegetable matter is so completely softened as to be readily cut with the spade. Such manure has lost all its heat and may be termed cold manure. Now there are several excellent reasons why this excessive or violent fermentation should not be permitted, among which are the following:

Every observant farmer has noticed that whenever violent fermentation in the manure heap is in progress, a large amount of gaseous matter is evolved, which of course is lost. Again there is always an escape of fluids which contain a large proportion of the soluble ingredients, and the loss of which reduces the quantity and quality of the manure heap sometimes, to the extent of fifty per cent. A most conclusive experiment was made by Sir Humphrey Davy, more than fifty years ago, which I will transcribe for the benefit of those who are the advocates of excessive fermentation.

The beak of a retort filled with hot fermenting manure was introduced into the soil among the roots of some grass in the border of a garden. In less than a week a very distinct effect was produced upon the grass; upon the spot exposed to the influence of the matter disengaged in fermentation, it grew with much more luxuriance than the grass in any other part of the garden.

If such effects are produced by the escape of gases from the small quantity of manure which would be contained in a retort, what must be the loss of fertilizing matter from a large manure heap?

But there are still other arguments against it. Heat, we know, is essential to the germination of seeds. When manure has undergone the process of violent fermentation, much heat is lost; but if this fermentation takes place in the soil, the important services of this otherwise lost heat are secured for the newly sown seed, or the young plant. Moreover, chemists tell us that "in all cases of decomposition, substances combine much more readily than after they have been perfectly formed." Such being the case, it is not difficult to understand why the fermentation of manure beneath the soil, should add so much more to its efficacy, than when it takes place in the farmyard. The gaseous and fluid matter evolved are brought into direct contact with the germinating seed or the growing plant, and before they enter into any new combinations, and are thus in a condition to be more efficiently appropriated.

These reasons, which are not offered as new, may not strike some of your readers as being very cogent; but a few experiments will demonstrate their correctness with them as they have done with us.—*Farmer and Gardener.*

Bedding Horses on Sawdust.

Having used sawdust as bedding for horses for a length of time, the result of my experience may not be unacceptable to some of your inquiring readers. I litter the horses on it to the depth of 6 and 9 inches, raking off the damp and soiled surface every morning, and spreading evenly a little fresh, removing the whole only four times a year. Its advantages appear to be many, of which I will state a few which give it, in my estimation, its great superiority over straw. It is much cleaner and more easily arranged, and of course much cheaper at first cost, making in the end excellent manure. It is peculiarly beneficial to the feet, affording them a cool porous stuffing, a substitute for the soil or earth we always find in the hoofs of a horse at grass, and presents the nearest resemblance to the horse's natural footing—the earth. We have never had a diseased foot since the introduction of sawdust in the stables, now some years since. Horses bedded on sawdust are also freer from dust and stains than when an ordinary litter, (simply because the sawdust is a better absorbent, perhaps,) and testify their own approval of it by frequently rolling and lying down for hours in the day. It also has the recommendation of being uneatable

—an advantage which all in charge of horses with the habit of consuming their litter will readily admit. Being free from pungent smell, which is apt to accompany straw, (unless very scrupulously kept,) it is innocent to weak eyes, and its slight turpentine odor is rather a sweetener than otherwise. It makes (when converted into manure) the best possible foundation for hot-beds, and, unlike other stable manure, forms no harbor of refuge for vermin. Pine sawdust is the best, and oak the worst, as the latter turns black the second day.—*London Field.*

Scientific vs. Practical Instruction.

The following testimony of Leibig as to his famous school at Giessen, is worth considering in these days of schools of practical science.—*Silliman's Journal.*

"The technical part of an industrial pursuit can be *learned;* principles alone can be *taught.* To learn the trade of husbandry the agriculturist must serve an apprenticeship to it; to inform his mind in the principles of the science, he must frequent a school specially devoted to this object. It is impossible to combine the two; the only practicable way is to take them up successively. I formerly conducted at Giessen a school for practical chemistry, analysis, and other branches connected therewith, and thirty years' experience has taught me that nothing is to be gained by the combination of theoretical with practical instruction. It is only after having gone through a complete course of theoretical instruction in the lecture-hall, that the student can with advantage enter upon the practical part of chemistry. He must bring with him into the laboratory a thorough knowledge of the principles of the science, or he cannot possibly understand the practical operations. If he is ignorant of these principles, he has no business in the laboratory. In all industrial pursuits connected with the natural sciences, in fact in all pursuits not simply dependent on manual dexterity, the development of the intellectual faculties by what may be termed school learning, constitutes the basis and chief condition of progress and of every improvement. A young man with a mind well stored with solid scientific acquirements will, without difficulty or effort, master the technical part of an industrial pursuit; whereas, in general, an individual who is thoroughly master of the technical part may be altogether incapable of seizing upon any new fact that has not previously presented itself to him, or of comprehending a scientific principle and its application."—*Leibig, Letters on Modern Agriculture.*

Feeding Grain to Stock.

NEAR GENEVA, 13th July, 1860.

DEAR SIR: Yours of the 9th inst. is received, and contents noticed. When I feed straw as fodder to sheep, I feed plump one pound of corn, oilcake meal, or barley. I find one bushel of corn to the 100 sheep daily, is as much as they can stand, and the same with barley. Barley I think makes a better feed for sheep than corn. They will stand one and a half pounds of oats or buckwheat daily, and do very well on either, but best on the buckwheat. Oil-cake meal they cannot be hurt with, but they will not eat much over one pound each daily; but they will eat one pound of grain per day and a half pound of oil-meal, and fat very fast. You should make sure your oil-cake meal is pure. It is often adulterated by mustard or other seeds pernicious to stock.

I feed my sheep mornings, grain, and then at 4 o'clock, P. M., feed again, giving a half a pound to each at a feed. I feed straw three times a day in racks, cleaning out the racks each time they are fed. I feed hay the last month three times a day, as much as they will eat up clean. I often reduce their grain one-quarter to one-half when I commence with hay, if the hay is clover and early cut, or fine hay early cut, but coarse timothy or late cut timothy I find no better than good straw cut in a raw state, that is before the grain becomes hard, when both grain and straw is much better than when let stand until fully ripe.

With regard to feeding cattle, I seldom feed over four or five quarts of corn or oil-cake meal per day. I prefer having cornmeal mixed with oil-cake meal, buckwheat meal, or meal of some other grain. If I feed more than five quarts per head daily, I make the addition of other meal than corn. I always feed hay or cornstalks to cattle. I never tried straw to cattle except for litter. A great point in keeping stock is plenty of litter, so that their yards and sheds are always clean and dry.

To oxen that have been accustomed to corn, I often feed a peck of meal to each daily, and sometimes more.

I would have sent this to the *Country Gentleman,* as you suggest, but I have so often published my mode of feeding that I feel almost ashamed to see it in print.—JOHN JOHNSTON, *in Country Gentleman.*

"If you grow a plant at all, apply to it all the care and skill which you possess. When a man buys a plant and neglects it, he throws away not only his money, but his reputation."

DESIGN FOR A SMALL FARM-HOUSE AND BARN.

The accompanying designs are intended to afford complete accommodation for a small farm—say from 15 to 50 acres in extent.

The plan comprises house and barn, with wood-shed and pig-sty all completed in one range, and having sheltered communication.

No. 1 is the front entry, 6 feet square; it opens into the parlor, No. 2, 14 feet by 15, and into a bed-room, No. 4, 12 feet by 15. No. 3 is the kitchen, 14 feet by 15, opening into the bed-room, back entry, and through a passage into the parlor. No. 5 is the back entry, 6 feet by 16, containing stairs to cellar and chambers. No. 6 is a pantry, 5 feet 6 inches by 8 feet, opening into the yard. No. 7 is a store-room, and No. 9 a scullery or back kitchen, 12 feet square. No. 8 is a porch over the rear entrance. No. 10 is a wood-shed, connecting directly with the barn.

The barn is 40 feet square, and contains two horse and three cow stalls, No 11, with a passage behind, and an opening to throw manure into the pig-sty, No. 13. No. 14 is a carriage-room, with double doors, opening into the yard, and No. 15 barn room for storage, 24 feet by 39. Room for hay is in the second story, which is well ventilated at the top. The stairs to the hay-loft are at the side of the carriage-room, and under them is a harness closet.

The second story of the house contains three bed-rooms, with a large closet to each, besides a large clothes' press in the entry.

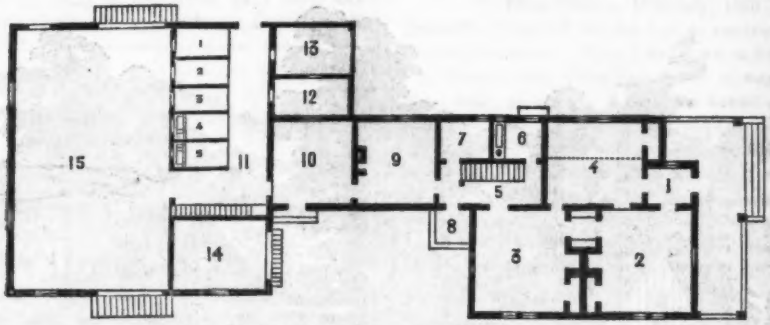
Construction.—This design may be built of wood, and covered either in the vertical and battened manner, or in the horizontal manner, with narrow clapboards.

The lower story windows, with the exception of the one in front, are all mullioned windows, shielded by hoods supported on brackets.

The dotted line on the plan represents the division between the main body of the house and the one-story addition.

Cost.—This range of buildings could be built for about $1500.

[*For engraving of Plan of Ground Floor, see next page.*



PLAN OF GROUND FLOOR.

Composting Manure.

With some friends I have been discussing the advantage of composting manure. I cannot see that, by mixing manures, we add anything to their value. Why are not the same manures applied to the soil just as valuable as though mixed, or composted, and then added?—A LOVER OF FACTS, *Ontario, N. Y.*, 1860.

It is true that we cannot add to the elements of fertility by mixing manures in the form of compost. The value of a manure in practice, however, depends somewhat upon its mechanical as well as upon its chemical condition. It may contain all the elements necessary for a valuable manure, and yet be in such a condition that these elements cannot be made available. A farmer may, through some misfortune, have on hand a number of dead carcasses, or a quantity of refuse animal matter at killing time in the fall, and a quantity of strong liquid manure from the stables. He may also have, as almost every farmer should, a pile of weeds, leaves, road scrapings, muck from the swale, &c. Now, nothing is *added*, we admit, by mixing them, and yet we think much is *gained*. The animal bodies and matter are not in a condition to distribute over the soil, and if put together to decay, putrefactive fermentation takes place so rapidly that much of value is lost. The liquid manure must be diluted with water, and distributed over the soil, and this, with the conveniences farmers generally have, is a very troublesome operation. The refuse pile of muck and weeds should be decomposed before being put on the soil, or its decomposition takes place very slowly, and many of the weeds will grow. But even in a pile, unless there is an unusual quantity of vegetable matter, decomposition is too slow. This is the condition in which the farmer finds himself placed, with all the elements of a valuable manure on hand, but yet not in a condition to be applied to the soil.

It is in such a case as this that the value of composting is seen. Make the animal matter as fine as possible, mix it with the cold pile of muck, turf, &c., pour over this the liquid manure, and the result is that the disposition of the animal matter to decompose too rapidly is checked by the slowly decomposing substances with which it is in contact, while the decomposition of these are hastened, and in a few months all forms a mellow pile of the richest manure, in the proper mechanical condition to be evenly applied to the soil. Fresh stable manure cannot always be taken to the field and ploughed in as soon as made, and if thrown in a pile alone, rapid decomposition takes place, and the result is a great loss of valuable plant-food, and a mass of fire-fanged stuff hardly worth cartage. If this manure had been composted with any slowly decomposing material, all would have been saved. It is the opinion of some of the best cultivators in Europe, that peaty muck receives most of its value from the decomposition which it undergoes in the compost heap.

The compost heap furnishes a very convenient receptacle for odd things, which but for this would never be saved—a few bushels of weeds would lay in the corner of the fence but for the fact that the compost heap is waiting for them—it furnishes a fine grave for a dead hen or sheep-killing dog, and will nicely absorb all the washing water, &c., from the house. In this way the compost heap is a catch-all and save-all.—*Rural New-Yorker.*

Happiness must arise from our own temper and actions, and not immediately from any external conditions.

Meteorological Observations *kept at Schellman Hills, Carroll Co., Md., Sykesville P. O.,* NOVEMBER, 1860. (*Reported for the American Farmer.*)

DAY	THERMOMETER.				WIND.			RAIN	REMARKS.
	7 A. M.	2 P. M.	9 P. M.	D'y Mean.	7 A. M.	2 P. M.	9 P. M.	Inch's	
1	65	75	65	68½	E.	S.E.	S.E.	¼	Cloudy; rain commenced last evening; ended
2	66	67	55	62½	N.E.	E.	E.	.....	Cloudy. [10 A. M.
3	65	65	54	61½	N.E.	N.	N.W.	1½	Rain; stormy from N.E., ended at 10 A. M.
4	43	50	40	44½	W.	W.	S.W.	.....	Clear.
5	35	60	50	48½	W.	S.	S.W.	.....	Clear—frost.
6	38	45	33	38¾	N.W.	N.W.	N.W.	.....	Clear; 2 A. M. hail.
7	37	48	35	40	W.	W.	N.W.	.....	Clear.
8	30	49	40	39¾	W.	W.	W.	.....	Clear—ice and heavy frost.
9	45	51	45	47	W.	N.E.	N.E.	1¼	Rain began 7 A. M.; end night; 9 P. M. stormy.
10	46	45	44	45	N.W.	W.	W.	¼	Clear; cloudy; 3 P. M. rain end 8 P. M.
11	43	49	43	45½	W.	W.	W.	.....	Cloudy; clear.
12	35	53	45	44½	W.	W.	N.W.	.....	Clear.
13	43	55	47	48½	W.	W.	N.W.	.....	Clear; strawberry vines in bloom in the valley.
14	42	58	48	49½	N.W.	N.W.	W.	.....	Cloudy.
15	40	58	44	47½	W.	W.	W.	.....	Cloudy; clear; early seeded wheat roots plenty.
16	35	62	45	47½	W.	S.E.	S.E.	.....	Cloudy; clear.
17	45	55	50	51¾	E.	E.	W.	.....	Fog all day; late seeded 1 to 2¼ inches long.
18	46	50	43	46½	W.	W.	W.	.....	Cloudy; clear.
19	43	58	50	50½	W.	S.W.	W.	.....	Cloudy; clear.
*20	45	45	35	40	W.	W.	N.W.	.....	Clear; 3.30 P. M. snow; end 4 P. M.; nearly an
21	35	42	35	37	W.	W.	W.	.....	Clear. [inch fell.
22	35	40	33	32¾	N.W.	S.	S.E.	.....	Clear.
23	35	45	40	40	S.E.	S.	S.	.....	Cloudy; snow began 6.30 A. M.; 8 A. M. rain.
24	35	25	19	16¾	W.	N.W.	W.	1	Clear; 4 A. M. hail storm—lasted 30 minutes.
25	10	26	23	19	W.	E.	S.E.	.....	Clear.
26	18	45	38	33¾	W.	S.W.	S.W.	.....	Clear.
27	40	51	48	46½	S.E.	S.W.	S.W.	1	Rain—cloudy; rain began in night, ended 12 M.
28	38	40	30	36	W.	S.	N.W.	¼	Cloudy.
29	23	45	35	34½	N.W.	S.	S.	.....	Clear.
30	38	47	37	40¾	S.	S.W.	W.	.....	Clear; cloudy; clear.
31	..	..	..	.....	.....	.....	.....	.....	

*Snow. Monthly Mean, 43½. 5½ Inches Water fell.

HARRIET M. BAER.

[For the American Farmer.]

How to Keep Vermin Out of the Poultry House.

The first thing poultry require is a good warm and comfortable house to lodge in, as the chilly winds of winter are fatal to them; one cold, rainy night, if they are exposed, will give them a cold, and from cold that terrible disease, the roup, is contracted, so fatal to poultry. Whitewash your house in and out this month. Put sassafras poles for the fowls to roost upon; I find that the insects leave the fowls if they roost upon the poles of sassafras. Make the nest boxes out of cedar wood. For the nests mix second crop hay with tobacco leaves; this is a preventive of vermin on the laying and setting hens. Put a small lump of lime in each corner of the house, so that it will be slaked by the air. I imported a pair of Gold Crested Fowls from London four years ago. When they came to Baltimore the hen caught cold, which turned to the roup. For two years she never layed, owing to this dreadful disease. I tried plan after plan to save my fowls. I kept the house warm and put a little sulphur in the water, and the arrangements I had already made in the house had a wonderful effect on the roup; in a few days she looked more lively, in less than a month commenced to lay, and continued nearly the whole year and raised a hatch of chickens. The crested fowls are more liable to the roup than any other breed of poultry. Several experienced breeders of the golden crested fowls, in England, consider them extremely tender, and so difficult to rear that their eggs should not be set before the middle or latter end of April, as dampness is fatal to all kinds of poultry. The gold crested fowls are unrivalled, and, if their plumage is examined, exhibits much beauty. If they live to be adults no fowls are more hardy or profitable as layers, or more delicious for the table; their flesh is excellent, being white, tender and juicy. "So rare are these birds," says my correspondent, "that I searched for them a long time in vain; however, in the Zoological Gardens, Regent's Park, they are in perfection. I send to you one pair, with the other fowls and birds, by the ship Antarctic."

J. JACOB BOWER.

COLTS ON A HARD FLOOR.—One of your correspondents has stated that colts should stand on a hard plank floor in order to toughen them for a hard road. It looks to me like putting hard, thick shoes on an infant's foot to raise corns that will trouble him for life. Let colts stand on a soft, moist floor.—*N. Eng. Farmer.*

The American Farmer.

Baltimore, January 1, 1861.

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Farm Accounts.

We have urged upon our readers from year to year the importance to them of careful accounts of their receipts and expenditures. An account should be kept not only with the farm generally, but with each crop, charging the whole cost of labour, manure, seeds, &c., and crediting it with the full value of crop, not only of the portion sold, but of that consumed on the farm. It is only by such careful estimate that the comparative value of different crops may be determined. And it is only by the knowledge of his business he gets in this way that he can know with certainty what he is doing, and whether, and to what degree, his business is productive. The young farmer especially should begin at once the practice of keeping such accounts. He will find it to increase in interest and value to him every year. Besides such money accounts, he should keep a book of daily memoranda of work done, weather, &c. Now is a convenient season to digest and enter upon such a practice, and we hope our young farmers will not let the season pass without improving it.

Blackwood and other Magazines.—We are indebted to Mr. Freeman, the Agent in this city, for December number of Blackwood's Magazine. This and the British Reviews, embracing the *London Quarterly*, the *Edinburg Review*, the *North British Review*, the *Westminster Review*, are still republished in New York by Leonard Scott & Co. at the very low price of $10 for the whole, $31 being the price in England.

Farmers' Clubs.

Will not our agricultural friends take advantage of the winter's leisure to get up farmer's clubs in their neighbourhood? We have often had occasion to allude to the oldest club of this sort within our knowledge, and one which has been productive of great good as well to their county and State as to its own members,—we mean the old association of Talbot county, but do not now recollect its precise designation.—This club is composed of a limited number of gentlemen, perhaps not more than twelve or fifteen, who meet on a fixed day in each month at the house of some one member, and eat dinner with him and inspect and remark freely upon his farm and farming. The rule is that agriculture is the topic of the day, and some subject is brought before the meeting for free and informal discussion. There is no manner of association, we should think, at once so pleasant and useful as this, and at the same time so simple and so easy to effect.

There are a number of clubs of this sort in Maryland and Virginia, but there ought to be hundreds of them.

Facts as to Early Seeding.

Our readers know that we have been very emphatic upon the subject of the early seeding of wheat. Mr. J. Q. Hewlett, in a conversation, gives us the result of his experience for twelve years past.

During the first seven years he seeded about the 15th of September, and averaged thirty-three and a half bushels to the acre during that time. The last of these seven crops fell as low as twenty-two bushels to the acre, owing to the fly, which induced him from that time to wait till the 5th of October. For five years past he has sown about this time and has averaged but 22 bushels to the acre, though his land is without question in higher condition and producing more of corn and grass than during the seven years when the larger crops were made. Mr. Hewlett keeps accounts of his farm work, and is able to speak "by the book." He believes his falling off of late years is to be attributed mainly to the later seeding, and has determined to change his practice.

LOSS BY SHRINKAGE.—Why will not some exact experimenter try and see how much a bushel of corn loses in weight between Christmas and 1st of May? Try it both shelled and unshelled and let us hear.

The Md. Ag. College—Lectures, &c.

Attending a meeting of the Board of Trustees at the Agricultural College within a few days, we note with great satisfaction the acceptable services rendered by its able corps of professors during the current term, and the general good order and diligence of the students. We feel no hesitation in commending this Institution to parents who want their sons under mild, considerate, but firm government, with faithful and efficient instruction, and where their association will be with young gentlemen who appreciate what is due to themselves and to the character of the Institution of which they are members.

Mr. Chenowith, a graduate of the Virginia Military Institute, and until now assistant professor of Mathematics in that Institution, has been appointed Prof. of Mathematics, and brings with him very high testimonials for ability and acquirements.

We learn that a plan is on foot to get up a Course of Lectures on practical and scientific Agriculture, somewhat after the manner of the lectures at Yale College last winter. We anticipate excellent results from such a course, and hope it will be cordially taken up and prosecuted.

A Lecture on Shakspeare, delivered recently before the "Mercer" Society, by the accomplished Professor of Languages, M. Lorino, elicited, we learn, the warm commendations of a very considerable audience.

Brahmin Cattle.

We have received from Richard Peters, Esq., Atlanta, Ga., a Descriptive Catalogue of his Stock exhibited at the State fairs of Georgia and Alabama, embracing Cashmere Goats, Essex Swine, and Devon, Durham and Brahmin Cattle and their grades. Of the latter he says, they "have proved themselves to be remarkably well adapted to our Southern climate, being entirely exempt from the murrain, black tongue, and other diseases to which our native cattle are in many sections so very liable. As milkers, they are far above an average, yielding with great regularity throughout the season, a uniform supply of very rich milk. As oxen, they are unequalled by any other breed in the world; their great size, their powers of endurance, and their rapid gait, enables them to outwork any other cattle under the yoke."

Salt and Lime for Wheat.

A correspondent of the *Farmer and Gardener*, who had been troubled with the falling down of his wheat, relates the following experiment: "I made a mixture in the proportion of two parts (in weight) of lime to one of salt; I permitted the mixture to lie in the heap for some four weeks before applying it; I then spread it over a part of the field at the rate of a ton and a half to the acre. The result was that in that part of the field the wheat all stood well, while on the remainder it went down before the heads were entirely filled. I need not tell you how much easier the former was to cut than the latter.—The yield was decidedly better, and in addition to these advantages, I found the clover, on the part to which the mixture had been applied, larger and finer than where it had not been."

Another correspondent of the same paper says he applied a top-dressing of salt, about a bushel on an eighth of an acre, when the turnips were putting out the third leaf. A very severe drought succeeded, and the result was a much better yield on the salted part than the other. They stood the drought well, and were not attacked by the fly.

The Preparation of Clover and Grass Seeds for Sowing.

There is no cultivator of grass who is not aware of great loss from the failure of a very large portion, of even good seed, to vegetate. Whether from being covered too much or too little, or from whatever cause, there is little doubt that one-half the seed we sow is lost. The chief difficulty, we think, when the ground is in good order, is in giving it just so little covering as will cause it to vegetate, and this is very little, while we shun the extreme of covering too much. The subject of preparing the seed before sowing has received little attention we believe, and is well worthy of it. If a slight coating of some fertilizer, which will guard it against loss of moisture on the surface until it strikes root, and give a stimulus to the plant in its earliest growth can be effected, we do not doubt its good effect. In the following from a communication we find in the *Germantown Telegraph*, it is recommended to moisten with brine and with plaister. We have seen another recommendation to use tar-water to cause adherence. We suggest the use of Peruvian or Manipulated Guano to roll the seed in. We attach much importance, whatever fertilizer is used, whether for grass or other seeds, in having a portion of it in direct contact with the seed. The young plants get thus an impetus which is very advantageous to them. The following is the process of the writer alluded to above:

"The seed is in the first place thoroughly wet with a good strong pickle from the meat barrel,

enough being applied to wet the floor on which it is spread. It is then gathered into a heap, and allowed to remain one day to swell. If the temperature of the atmosphere should be low, it will be judicious to warm the pickle before applying it, and to give the seed another salting the next day. After this spread it evenly, about one inch thick over the floor, and in thirty-six hours each seed will be found covered with a thin crust of salt, which will enlarge the size of the seed, and adhere to it so firmly as not to be easily rubbed off by the hand. When it is wanted for sowing, moisten again with pickle, spread it on a dry floor and sprinkle on three quarts of finely ground plaster of Paris to every half bushel of seed.—This will adhere to the kernels, and again increase the size of the seed, so that with the swelling, the coating of salt and the adhering gypsum, one bushel will be increased in bulk to the volume of two. Should anything occur to render the immediate sowing of it unadvisable, after it is thus prepared, remove it to your cellar and keep it moist till a favorable time arrives. The sowing may be performed in the ordinary way, with the hand.

If urine be poured over the seed for a few days and a little fine gypsum sprinkled on to coat the seeds, the germination will be more rapid. Of all the stimulants ordinarily recommended for clover, this mineral is, I am persuaded, the most efficient, and the most certain of success; and I would no more think of sowing down a piece of soil to clover—no matter how rich it might be in vegetable matter, or how carefully it might have been prepared—without an application of this prime exciter of germinative energy, than I would think of making pork without grain."

Virginia State and Central Societies.

We find in the "Southern Planter," a full list of awards at the Virginia Exhibition at Richmond. We annex a portion of them. Among the Durham Cattle we find S. W. Ficklen, of Albemarle, and R. H. Dulany, of Loudon, take some of the chief premiums. Of Herefords, Jno. Merryman, of Maryland, takes all the premiums but one taken by Stephen Hunter, of Henrico co. Of Native Devons, J. H. McHenry, of Maryland, takes first premium of $75, for "Uncas," S. S. Bradford, second; Capt. Stranburg takes two second premiums for bulls, and first premium for cow; S. J. Carson, for best imported bull. Of Alderneys, Peyton Johnston, of Richmond, took premium for best bull over three years; J. H. McHenry, 2d best, S. S. Bradford, of Culpeper, best bull two years old, J. H. McHenry 2d best; Peyton Johnston, best premium one year old, J. H. McHenry, second; Peyton Johnston, for best cow over three years old, J. H. McHenry, 2d; J. H. McHenry, best cow two years old; Peyton Johnston, best heifer one year old, J. H. McHenry, 2d best; J. H. McHenry, best imported cow. Mr. Johnston's Alderneys were obtained chiefly from the herd of John Glenn, Esq. For best Dairy Cow, the premium to S. S. Bradford.

In the Exhibition of Horses, R. V. Gaines, of Charlotte, S. W. Ficklin, of Albemarle, R. H. Dulany, of Loudon, Dr. John R. Woods, of Albemarle, take their full share of the large number of awards made. The Show of Horses is said to have been unusually fine.

In the Sheep Department, Mr. S. S. Bradford takes nearly all the premiums of fine Wools, R. H. Dulany all for middle Wools, and Dr. John R. Woods all for long Wools. The following is the awards for Hogs:

CLASS 53—*Large Breed, including Chester, Russia, Bedford, Woburn, Grazier and Byfield.*—Best Boar two years old and over, $20, Peyton Johnston, for Chester county Boar; second best $15, S. W. Ficklin, for Chester county Boar; best Boar one year old and under two, $15, Peyton Johnston, for Chester Boar; second best, $10, Joseph L. Sinton, for Chester Boar; best Breeding Sow two years old or over, $20, Peyton Johnston, for Chester Sow; second best, $15, S. W. Ficklin, breed not given; best breeding Sow one year old and under two, $15, Jno. R. Woods, for Albemarle Chester; second best, $10, to same, for do.; best Sow and Pigs, $20, to same.

CLASS 54—*Small Breeds, including Neapolitan, Suffolk, Sussex, Essex, Berkshire, Chinese and improved Hampshire.*—Best Boar, two years old or upwards, $20, R. H. Dulany, Loudoun, for Essex Boar; second best, $15, Dr. J. E. Williams, for Essex Boar, best Boar one year old and under two, $15, F. Griffin, for Sussex Boar; second best, $10, Peyton Johnston, for Hampshire Boar; best Breeding Sow two years old and over, $20, R. H. Dulany, for Essex Sow; second best, $15, Peyton Johnston, for Hampshire Sow; best Breeding Sow one year old and under two, $15, B. W. Haxall, for Suffolk Sow; second best, $10, to same, for Suffolk Sow; best Sow and Pigs, $20, R. H. Dulany, for Essex breed; 2d best, $10, F. Griffin, for Surry breed.

The Committee beg leave to say that all the animals exhibited in this department were very superior, and they found it difficult, after a laborious examination, to determine upon their relative merits.

PETER HANGER,
BRAXTON GARLICK,
DAN'L S. DELAPAINE,
DAN'L E. GARDNER,
Committee.

Writing for the Farmer.

We have received the following from a subscriber, enclosing his annual subscription, and publish it with the hope that its suggestions on one point, at least, may not be without effect. With regard to the names mentioned by him, Mr. Stabler pleads advancing years and pressing engagements outside of his agricultural concerns. The polished pen of "W. B. B." has ceased to write forever, and our friend of "Severn Side" is like many others, waiting for that "convenient season," which we venture to suggest to him and them is "now," just when they finish reading this article. There are many, many farmers in Maryland, to say nothing of the large number among our subscribers in Virginia, North Carolina, Tennessee, and other States, who are not only intelligent, successful farmers, but educated gentlemen; men who have something to write about and are very capable of writing it, and whose success as farmers, is a standing refutation of the absurd notion that the cultivation and refinement of the mind by education is an impediment to skill and prudence in the management of their affairs. Of these there are quite enough to fill our pages monthly, if they would. There are a great many others who have been less fortunate in their opportunities of early education, and for want of the early training and practice essential to an accomplished writer, are averse to putting their thoughts upon paper, but whose minds have been trained and educated in the school of experience; who have been thinking while they are working, and working while they are thinking. Communications from such men are quite as acceptable as if written in the most polished and elegant style. What we want is good, sound, solid sense. Style and polish is very desirable when this lies underneath, but they are of secondary importance.

We "improve" the occasion of our correspondent's suggestion, to beg the aid of our readers in giving variety and freshness to our pages, by sending us their *thoughts*, dressed up in just such style as may suit their fancy or convenience. We ask them to do it *now*, because now is the best time always, and because many of them we know, when they read the Farmer, find themselves moved to communicate their own views of matters they find treated there, and put off doing it to that convenient season which is—never. It is therefore *now or never*.

We commend to the Almanac makers, our friend's suggestions on the Moon question. We expect, of course, that hereafter he will take heed to his own hint about "hiding light under a bushel."

"I have been accustomed to the regular appearance of the Farmer so long, that I could hardly do without it; and as long as I can find the requisite dollar, I have no intention of trying the experiment.

"Though the Farmer is improved in every respect, Mr. Editor, yet I miss some of the old, able correspondents who formerly contributed much of interest to its columns. I have not seen anything from the pen of that excellent writer, Mr. Edward Stabler, for a long time. Major Giddings, too, knows how to handle the English language; W. B. B. of Ellendale, and several others, have not contributed anything for many months. Probably a hint from you would induce them to contribute something from their stores of knowledge and experience for the benefit of less favored 'laborers in the vineyard' and in the field. Although the Editor of the Farmer evidently has a thinking machine of his own, and does his own thinking and writing independently of 'the people of the city' or of the country—it is no reason why practical men of education, men who know how to write as well as how to work, should 'hide their light under a bushel.' Gentlemen qualified to lead in a good cause, should not lag behind and 'hide this talent in a napkin'—should not 'live for themselves alone.'

"I give a number to a neighbor occasionally, and recommend the Farmer. But here, (I am sorry to say,) reading is not considered a qualification for a farmer. The almanac and the moon are the oracles consulted in regard to agricultural enterprises. It is not surprising to see how men hold on to error and absurdity in this age of science and reason? Sometimes, even men who have correct ideas of other things which come under their observation, on this subject of the influence of the moon, talk the veriest nonsense imaginable. Though, as a general thing, I observe that he who knows the most concerning the moon, has the least knowledge of things nearer home. He can see more by moonshine than he can by sunlight—like an owl. However, this is a free country, and a man is not obliged to use common sense if he has none.

"I think the Almanac makers are responsible for much of this unreasonable faith in lunar influence. The times demand another reformation of the calendar. It appears to me that that absurd cut—surrounded by 'Leo,' 'Taurus,' &c., which embellished the cover of many almanacs, might be omitted with advantage. And of what consequence is it (for the common purposes of life,) to know that the moon is in the direction of a certain cluster of stars; in other words, to

know 'what sign the moon is in?' Suppose a farmer gets ready to plant or sow, to plough, or to perform any one of the many other operations which depend on the direction of the 'man in the moon;' every thing is in good order, and the weather propitious; he looks at the almanac and finds the 'sign is not right;' he waits a few days for the moon to get right, and in the meantime the weather gets wrong. Suppose a considerable proportion of the farmers pursue a similar course. Will any one say the loss is inconsiderable?"

Manuring and Ploughing.

TALBOT COUNTY, Dec. 10, 1860.

To the Editor of the American Farmer:

Will you be kind enough to inform an old subscriber in what part of the country your correspondent "B." lives? We are inclined to think that he must live upon a very shallow soil, and cultivate a small piece of land, or has never seen beyond your city limits; he advises to plough as deep again as the soil, and cover the land three inches thick with manure. To follow his advice, we in Talbot would have to plough some of our fields from 20 inches to 2 feet deep. We would like to know what kind of a plough to use, and how many horses it would take to pull it through a stiff soil. As for the manure to cover over a fifty acre field, would require 20,000 cubic yards or 40,000 single horse cart loads. We in Talbot are very fond of manuring, and generally cover our cultivations, but it would take a good many of us to raise as much as "B." recommends. I was sorry to see so much of your valuable paper taken up with cattle show reports. Yours, with respect,

A SUBSCRIBER.

"A Subscriber," if he will look again, will find that "B." does not recommend ploughing "as deep again as the soil," but "*half* as many inches extra as your soil is deep." This would indeed make a large addition where there is already a deep soil, but the recommendation, it is apparent from the tenor of the communication, was designed for land not improved, and therefore not having a soil ten or twelve inches deep, as "A Subscriber" says of his Talbot county land. If already four inches, "B." would add two more, making six. If already six, he would add three more, making nine. And as to his idea of manuring—his topic being the "Improvement of the Soil"—it was based upon the necessity of deepening considerably as a first step, and manuring liberally as a guard against risk to the first crop from the "raw earth," and to make thorough work as far as he goes. It was not designed for a general, ordinary cultivation, and we think is not obnoxious to our correspondent's criticism.

As "A Subscriber" is relieved from the necessity of ploughing 20 to 24 inches, in order to follow "B.'s" plan, there will be less difficulty of getting a plough to suit and horses enough to pull it through a stiff soil. On this point of a plough that will plough even twelve inches well, we think there is much difficulty. There is so little demand for such that the manufacturers have not perhaps given it their special attention. Mr. Hewlett, after trying a long while to be suited in this respect, has at last fallen back upon the old Davis plough, with some modification of the mould board suggested by himself, obtained from Mr. Cromwell, of this city, and is doing very good work on heavy sod land, to the full average depth of fifteen inches. He ploughs with six mules, three abreast, the lead mules being hooked to the trace chain of those behind, between the hame and the collar.—EDITOR.

THE YALE AGRICULTURAL LECTURES.—We observe that the Course of Lectures on various Agricultural topics, inaugurated last winter at Yale College, is to be repeated in 1861. These lectures are given under the auspices of the Scientific Department of the College, as a supplement to its newly begun course of practical collegiate education. The lectures last winter brought together a number of the most intelligent agriculturists, and gave great satisfaction.

☞ We have received from the Agent of the New York Tribune, an extended advertisement of that Journal, with the request that we publish it three times. To serve the Tribune in any way, we take occasion to say, would be as repugnant to the feelings of the publishers of the *American Farmer* as it would be insulting to a large portion of its most esteemed supporters, and we decline the advertisement as a matter of course.

You are not certain that ever you will attain to the years of your fathers. There are graves in the church yard just of your length, and skulls of all sorts and sizes in Golgotha, as the Jewish proverb is.

Sicknesses befall us in five ways, either for the increase of our glory and endless felicity, as in the case of Job; or to repress pride, as in the case of Paul; or as a commencement of penal torment, as in the case of Herod.

Marling, Manuring and Ploughing.

We find a letter from Senator Hammond, of South Carolina, in the *Southern Field and Fireside*, in which he gives some account of his experience in the use of Marl, and makes several suggestions well worthy of note as to depth of ploughing with reference to the profitable use of fertilizers. So far from abandoning the use of marl as unprofitable, as had been stated in the *Field and Fireside*, his operations were not discontinued until all the arable land on the farm —about 3,000 acres—had been dressed, and considered himself "amply remunerated for the cost of putting on 400,000 bushels." "The conclusion I came to," he says, "was that in a good crop year, marl judiciously applied, would increase the crop 100 per cent., in an ordinary year 50; that it would rarely fail to increase it 25 per cent.; but that in a season so extremely hot and dry as the last, it did positive injury."

"I erred in following, for a time, English and more northerly directions. We cannot use here, to advantage, anything like the amount of lime or manure that they can there. Our drenching rains and summer heat forbid it. Lime I do not regard as manure. All soils have enough of it to feed the plants they grow, though none can be detected by analysis. Its further use is to modify the character of the soil, and to conserve and offer to the plant, in the most economical manner, the manures existing, or placed in the soil. In this climate my opinion is, that the plan to improve or to retain the productive capacity of our lands, is to break up deep and deeper, and to give them sufficient rest and manure. The deeper you plough the more manure it will pay you to put on. To lands broken up four inches deep, as is most usual, it is only accidental, if any manure, concentrated or not, is of any value at all. I believe that three years out of four it does more harm than good.

"For the last twelve years I tried to break up my land at least eight inches deep, cultivating it after as shallow as possible. Yet I doubt whether the moderate application of manure which I have been able to make—say twenty-five bushels of cotton seed or a hundred of stable and yard manure to the acre has been of any service even on marled land. To manure with complete success in this climate one must break up twelve inches deep. Moisture enough must be received to dissolve the manure and to keep down the heat evolved in the solution. Not poisonous seep water from below, but water from above with ammonia in it. I have heard of planters who broke up twelve to fifteen inches. My lands are all very light. The utmost that I have achieved with a pair of mules in my lightest field was nine inches average."

The remark that in a hot, dry season, the marl did positive injury, is intended to apply, we presume, to the season immediately following its application and before it has become thoroughly incorporated and produced all its modifying influence. Lime, it is well known, is usually slow in its action, and its general effect is to protect the soil in which it is incorporated from the injurious effect of heat and drought. But we can understand how a large dressing of marl, imperfectly mixed with a shallow sandy soil, would cause the crop to suffer in drought. The remark that three years out of four, fertilizers do more harm than good in a soil ploughed but four inches, will cause some of our careless ploughmen to carry a rule in their pockets, to measure the number of inches they plough, that they may determine the prudence of taking money out of their pockets to buy fertilizers. The extreme uncertainty of the action of Peruvian Guano and other concentrated fertilizers on summer crops here in Maryland, is notorious. We have advised, to remedy this, the application of fertilizers at a much earlier time in the spring than usual, that they may have the influence of the spring rains upon them. Gov. Hammond's suggestion of a deep soil, "at least twelve inches," may be quite as necssary to insure their full effect. The two together would insure, we think, the profitable use of even a much larger application than it is common to make.

The effect of lime in modifying the character of the soil is very striking upon light soils, such as Gov. Hammond represents his to be. Our good friend, Mr. Hewlett, of Baltimore county, is now ploughing, for next year's cultivation, a field of as light soil *originally*, we suppose, as Gov. Hammond's, but to speak of ploughing it to the depth of nine inches with two mules would be simply ridiculous. He is ploughing it full fifteen inches, but with six large mules to a plough. But the soil, under the influence of lime and perhaps other fertilizers, and high culture generally, besides having a heavy sod, is so changed in texture and appearance, that it would never be recognized as the blowing sand hill which it was before he improved it, until by digging into the subsoil its original character is revealed. This particular field is a most remarkable instance, in several respects, of the effect of manuring and culture, and has given us entirely new ideas of the value of what are called sandy lands, and the profits of improving them.

Fat Sows for Breeders.

We expressed the opinion, in an article published some years since, that breeding sows were much more likely to suffer from want of flesh than from being too fat, and our judgment was called in question by an esteemed correspondent in Illinois, H. H., who maintained the contrary and the common opinion. Recently a correspondent of the *Genesee Farmer* gives to that paper the experience of a very successful pork raiser, Mr. John Skaats, who, he says, has "practiced raising pigs from pork-fat sows for fifteen years, and his experience is, the fatter the better." The editor of the *Valley Farmer*, at Louisville, comments upon the subject with very good judgment, as follows:

"We have had considerable experience in breeding swine, and at a time, too, when '*fancy*' breeds were held in high esteem, and their care commanded more than ordinary attention, and our experience fully corroborates what is stated of Mr. Skaats' practice. There is no class of farm animals so carelessly bred, and none in which the lack of proper management results in more serious loss than that of swine. To breed *successfully, and to maintain or improve the good points of a good breed*, a uniform system must be regarded; for swine breed so rapidly and at so early an age, that if not carefully attended to, the best breeds will speedily degenerate and become unprofitable. We deem the system practiced by Mr. Skaats as the only correct one in breeding swine, and it is precisely the one that we have always practiced. Sows should never be bred till they are at least 18 months old, nor a boar under 12, or better 18 months old. Up to this age sows should not be allowed to get excessively fat, until they are with pig, and then they can hardly be too fat, with prudent keeping. Pigs, when they first come from such sows, are usually small, but the sow has a store of flesh which she will impart to them in an increased flow of rich milk, and the pigs will start off unimpeded, and, with proper care, even on Western farms, may attain proper size for the knife, (say from 250 to 350 lbs.) at 12 or 18 months old. It is important that none but the best sows be reserved for breeding, and it is equally important that each sow bring two litters a year. When the pigs are about two months old take them at once from the sow. The sudden check in the secretion of milk will cause her *at the end of four days* to come in season. She is then reduced somewhat in flesh, and she will not fail to breed. Then continue generous feeding as when she was giving milk, and she will again become fat.—Continuing this course, with properly selected sows, two litters of pigs may be regularly had within the twelve months, and up to five or six years the sow will continue to improve as a breeder. With suitable crosses and well selected boars, the breeds of swine may be constantly improved; whereas, by the ordinary management of ninety-nine hundredths of the Western farmers the best breeds will constantly deteriorate."

Fork vs. Spade.

The time-honored spade is falling into disuse. Look at yonder son of Erin, as he drives the shining blade into the moist loam, and heaves out a square compressed mass, two sides of which are smooth and compressed as possible If you are standing near or working by his side he will hit it a rap and crumble the top of it a little, while the mass probably remains intact.

The ground will be levelled off with a rake, and the lumps will bake slowly, and remain likely enough hard and impervious all summer, if the ground is not deeply worked again. When spading is done in very dry weather, it is not liable to the same objection in degree, yet it leaves the soil always more or less lumpy.

How different it is with the use of the fork. The spading fork is found of various forms in the shops. We prefer one of narrow tines, rather long and very thick, made of good steele. A good quality of steel is very important, for often a single tine striking a stone or stick has to take instantly the whole force of the blow or shove. The tines should be thick; as considerable prying power is often required; and they should be narrow, that the earth may be no more compressed than is necessary.

A fork like this may be driven much deeper with the same force. It will lift the earth quite as well as a spade, and without packing it. If roots of trees, bulbs, or anything of the kind are present, there is little probability that they will be injured, if care is used and the ground may be loosened sufficiently in many cases without lifting the earth at all, in a way to bear the roots.

The fork, in fact, may be used wherever the spade can be, and a shovel is not more desirable —we do not claim for its superiority in shoveling sand or gravel—and it may be used in many places where a spade cannot be used. About trees, in raspberry, currant or vine-borders, especially will the fork be found of incalculable service, and the spade should be banished forthwith.—*Homestead.*

Quiet conscience gives quiet sleep.

Maryland State Agricultural Society.

PROCEEDINGS OF EXECUTIVE COMMITTEE.

Baltimore, Dec. 4th, 1860.

The Executive Committee met pursuant to the Constitution. Present—John Merryman, Esq., President, and Messrs. Mullikin, of P. George's, Moores, of Harford, Albert, of Baltimore, Richardson, of Cecil, Cooke, of Baltimore, and J. H. McHenry, of Baltimore county.

The President presented the case of Sullivan & Hyatt, of N. Y., to whom objections had been made as to the correctness of their entries at the late exhibition—after explanations and examinations made, they were awarded the diploma of the Society for their Union Washing Machine.

A similar decision was also made in favor of the Buckeye Mower.

The Treasurer presented a communication, with a detailed statement of the Receipts and Expenditures for the year ending Dec. 1—which were referred to a committee consisting of Messrs. Mullikin, Albert and Moores, for examination, who subsequently offered the following report, which was read and accepted, and the Committee discharged:

The undersigned, Committee appointed to examine the accounts of Samuel Sands, Treasurer, have performed that duty, and find the same correct, with the proper vouchers.

JAMES MULLIKIN,
W. J. ALBERT,
JOHN MOORES.

The President also presented an account of certain receipts and expenditures, which was referred committee consisting of Messrs. Mullikin and Sands, for examination, who offered the following report, which was read and accepted, and the Committee discharged, viz:

The undersigned having examined the accounts of the President with the Chesapeake Bank, have found the same correct with proper vouchers. The balance in his hands is $173.18, less $51.19, paid on account of feed to O. Zell.

JAMES MULLIKIN,
SAM'L. SANDS.

Sundry bills were presented, and ordered to be paid if found correct.

The President suggested that an arrangement might possibly be made with the U. S. Agricultural Society, for holding its next Exhibition in the city of Baltimore, in connexion with the State Society. Mr. Mullikin moved that a committee of seven be appointed by the Chair, for consultation as proposed, which was concurred in, and Messrs. James Mullikin, W. J. Albert, F. Cooke, J. H. McHenry, C. Hill, G. R. Dennis and John Moores, were appointed the Committee.

The President also appointed the Ex-Presidents and the present Executive Committee, as delegates to the next annual meeting of the U. S. Agricultural Society, to be held in the city of Washington, in January, 1861.

Mr. Richardson, of Cecil, tendered his resignation as Vice-President for Cecil, and suggested the name of A. J. Pennington, Esq., of Cecilton, as a suitable person to represent his county. On motion, the resignation of Mr. Richardson was accepted, in accordance with his request, and Mr. Pennington was unanimously elected to fill the vacancy occasioned thereby.

The election of General Secretary and Treasurer being next in order, Samuel Sands, the present incumbent, was unanimously re-elected for the ensuing year.

On motion, the election of Marshal was indifinitely postponed. Test,

SAM'L. SANDS, *Sec'y.*

TREASURER'S REPORT.

Baltimore, Dec. 1, 1860.

The Treasurer of the Maryland State Agricultural Society asks leave to submit the accompanying detailed statement of the financial operations of the Society for the past year—this, it will be seen, does not include certain receipts and expenditures, connected with the funds received from the State, upon which the President will make a separate report.

The total amount of receipts from all sources, independent of the State Appropriation, and the proceeds of the sale of lumber purchased for refitting the Show Grounds for the late Exhibition, and re-sold at the close thereof, was $4,061.41; and the expenditures by the Treasurer $3,552.25—leaving in the treasury, $509.16—subject to the payment of the premiums and other liabilities of the Society. Accompanying this, will also be found an abstract, of the several items of receipts and expenditures, which will show at a glance the main operations of the Society. The item of $203 for Treasurer's commissions, includes the salaries for ticket sellers, entrance gate keepers, assistant Treasurer and Secretary, counterfeit coin received, and discount on foreign money.

Respectfully submitted,

SAM'L SANDS, *Treas.*

An Abstract of Receipts from Dec. 1, 1859, *to Dec.* 1, 1860.

To balance in Treasury as last Report...			$23	57
85 Membership Tickets, for 2 years, at $5 each, less commissions to special collector			383	00
2 Membership Tickets, for 4 years, at $10 each, less commissions			18	00
4 Membership Tickets for 1859, at $3 each			12	00
417½ Membership Tickets for 1860, at $2 each			835	00
Receipts at the gates 1st day			78	00
Do.	do.	2d day	196	50
Do.	do.	3d day	855	59
Do.	do.	4th day	717	75

For tickets sold by Balt. & Ohio R. R. Co.		$294 50
Do. do. Nor. Cen. R. R. Co...		33 50
For 14 Fruit Stands, &c., at $10 each..		140 00
From Jas. Jeffries, for Refresm't Stand.		300 00
Profits on Sale of Stock in Show Gr'ds purchased and sold.....		166 00
Donations in cash, from H. M. Fitzhugh, $5, from James Garvey, $3.....		8 00
Total Receipts.....		$4061 41

EXPENDITURES.

Paid Premiums to date, exclusive of those relinquished to Society	$807 50	
Printing, advertising, &c.....	284 59	
Clerks, Gate Keepers, &c.....	388 00	
Markland & Bro., Carpenters...	772 07	
Expenses for clearing up Gr'ds. white-washing, &c.....	93 00	
Hay and Straw.....	517 98	
Rent of Hall for Meetings.....	46 00	
Rent of Society's Room.....	150 00	
Muslin, Ribbon and Rosettes....	39 74	
Jehu Gorsuch, for Hardware....	78 72	
Marshal, (in part).....	25 00	
Police, special Detectives.....	48 00	
Postage, Stationery, Hauling Lumber, and incidentals.....	98 58	
Commissions to Treasurer	203 07	
		$3552 25
Balance in Treasury.....		$509 16

PRESIDENT'S REPORT.

RECEIPTS.

By Cash from R. Moffit (6 mos. rent)...		$50 00
Do. from S. Sands, Treasurer.....		70 00
Do. from Treasurer of Maryland...		500 00
Do. from S. Sands, Treasurer.....		23 00
Do. M. Goldsborough		83 00
Do. from nett proceeds of sale of lumber, Markland's bill excepted, ($59.40) per account sales.....		404 46
By Cash in Bank.....		173 18
		$1303 64
Ry Balance.....	$534 45.	

EXPENDITURES.

To Cash paid for white-washing, repairing track, &c., as per voucher 1.....	$93 00
To Cash paid M. Goldsborough, balance of salary, per voucher 2.....	75 00
To Cash paid P. Zell & Son's Feed bill, per voucher 3.....	551 19
To Cash paid Taxes for 1860, per vh'r 4	50 00
To Balance	534 45
	$1303 64

JOHN MERRYMAN.

The above account was examined by the undersigned Committee, and found correct.

JAMES MULLIKIN,
SAMUEL SANDS.

Claims against Md. State Agricultural Society, on account of Exhibition of 1860—*and assets.*

Bill of D. & W. Wilson, for Lumber	$438 29	
Bill of John Vaughn & Co., for Lumber	487 61	
		$925 90
Cash in hands of Sam'l Sands, Treasurer	509 16	
Cash in hands of John Merryman, President.....	534 45	
		1043 61
Balance on hand.....		$117 71

Statement of Cost of fitting up Show Grounde, Repairing Track, &c.

Bill of Lumber of D. & W. Wilson.....	$438 28
Do.. John Vaughn & Co.	487 61
Bill of Hardware, Jehu Gorsuch.....	78 72
Cash paid M. Goldsborough, Track and White-washing.....	93 00
Cash paid W. T. Markland & Bro., Carpenters' Work and Labor	602 50
	$1700 12
Less amount sales of Lumber, &c..	463 86
Nett Cost	$1236 26

Treatment of Muck.

Of all methods of using muck, says the *American Agriculturist*, we are best pleased with it as an article of bedding for cattle. This, we think the best and most rapid way of manufacturing it into manure. In addition to the liquid manure and a portion of the solid which it receives, it has the heat of the animal while lying down, and this, with well fed cattle, is a large part of the time. It has all the qualities of a good bed, dryness, softness, cleanliness, until it becomes saturated with urine, when it is time to throw it out and put in a new charge. An allowance of a half cord to the animal, will become saturated in about two weeks, if the stall be occupied all the while.

A correspondent asks if the muck should be taken from the stable to the compost heap, or to the field for ploughing in? Either is a safe practice. We are governed entirely by circumstances in the disposition of the muck after it leaves the stable. In the spring, during the planting season, we fork it over, make it as fine as possible, and plough it in. Nothing is lost by this method. If not wanted for immediate use, we remove it with the solid droppings of the compost heap, where we mix it with two or three times its bulk of muck or peat. It undergoes fermentation, and becomes a more valuable manure, we have no doubt, than that taken directly from the stables. The ammonia is more equally distributed through the mass, there is more of it, and it is in a much finer condition. But the labor of handling is considerable. Whichever course is pursued, we always think money is made about as fast as a farmer can expect, when he is handling muck. We are confident the man who follows it up ten years, will come to the same conclusion.

[For the American Farmer.]

Chemical Analysis of Manures.

Can the fertilizing value of manure be determined by chemical analysis? This is at present a very important subject for consideration, for if this question cannot be answered affirmatively, the Legislature of Maryland in legalizing chemical inspectors of manure, has opened a wide field of fraud and speculation upon the credulous and confiding farmers. The Baron Julius Justus Von Liebig not many years since announced to the world that, by a careful analysis of manure he had discovered those compounds which constitute it a fertilizing substance. He assured the farmers that thereafter the chemists would be able to manufacture a few pounds of mineral salts which would restore the fertility of their exhausted soils and enable them to dispense with the application of any other manure whatever, and he obtained a patent for this important discovery in England. His patent chemical mineral compound proved to be a perfect humbug.—In his Agricultural Chemistry I find the following remark: "Thick books have been written and many experiments instituted, and yet we know not what manure is"! Whether this candid admission was written before or after the failure of his panacea, I do not know. The signal failure of this able and distinguished chemist to unveil the mystery of the fertilizing composition of manure, appears not to have discouraged some of the chemists in America from advocating a similar pretension. They now confidently assure the farmers that the analysis of manure clearly demonstrates that it is almost entirely composed of the phosphates and ammonia—that although it does contain minute quantities of other substances, yet the indispensable fertilizing constituents are undoubtedly the phosphates and ammonia, and they boldly assert that the proportional quantities of these important principles ascertained by chemical analysis, accurately determine the fertilizing or monied value of all manures. If this should prove to be a fallacy, the farmers can readily understand the numerous impositions to which they may be subject in the purchase of manipulated manure. It would prove but poor consolation to the farmer who had purchased a cargo of worthless material to be told by the manufacturer that he had honestly complied with the requirements of the law and bowed submissively to the mandates of science.

The distinguished agricultural chemist of England (Professor Johnson) having been invited to deliver a course of lectures before the agricultural societies of Massachusetts and New York, by request analyzed a mineral rock (phosphorite) in New Jersey, which he pronounced a more valuable manure than bones, because he ascertained that it contained a larger percentage of the phosphates than bones themselves, and he *very courteously* remarked that this phosphorite would prove a mine of wealth to the American farmers if they had sense enough to appreciate it or money enough to purchase it, of which he entertained a doubt. This mineral rock, I understand has been subjected to repeated careful experiments, and has proved to be utterly destitute of fertilizing qualities. The able professor of agricultural chemistry, of Maryland, (Dr. Stewart,) has recently informed the public that Sombrero Guano and Coprolites (the petrified excrement of animals) are not manures. The importers, however, aver that science demonstrates them to be rich in bone phosphate.

These facts prove conclusively that substances although possessed of a large percentage of phosphates, yet may be devoid of fertilizing properties. There is more plausibility in the assertion that ammonia is a principle of fertility, because observation teaches that these substances so located as to experience that peculiar process termed putrefaction, evolves ammonia, and that the residue of this decomposition always proves to be manure. The escape of ammonia appears to characterize the process of putrefaction as truly as the escape of carbonic acid gas indicates the process of fermentation, yet this does not prove that the fertilizing value of manure depends upon the percentage of ammonia, for it may be completely expelled from putrescent bodies without in the slightest degree diminishing their fertilizing virtues. A distinguished agricultural chemist, Professor Petzholdt, assures us that this is the fact in the manufacture of that valuable manure termed Poudrette, every particle of ammonia being expelled by the action of quick lime, and, he says, "this affords a convincing proof that the value of dung as manure does not depend upon its nitrogenous organic constituents." Every experiment instituted with the salts of ammonia which have passed under my observation, prove them to be injurious to vegetation rather than fertilizing substances, with the exception of a particular preparation termed sulphate of ammonia; but we are assured by Professor Johnson that this was not a fair experiment. He says: "This sulphate of ammonia was made by adding sulphuric acid to putrid urine, and evaporating to dryness." All practical farmers know putrid urine to be a valuable manure, and they have yet to learn that its fer-

tilizing virtues are enhanced by the addition of sulphuric acid. I believe, therefore, that neither the presence nor the absence of ammonia will determine the true fertilizing value of manure. Neither the phosphate of lime nor any other mineral substance whatever has been proved to be possessed of the fertilizing virtues of manure, but bones and animal matter of every kind. All vegetable substances and the earth itself will experience that chemical change by which they are converted into fertilizing residues. This residue is termed mould, when made of the earth itself, and manure when made of animal and vegetable matters, and proves to be *the only food of all cultivated plants*. What are its fertilizing constituents I do not know. Why putrefaction is the only chemical change that produces it, I cannot explain—or why the same substances, by a mere modification of circumstances, may be converted into products so dissimilar in qualities as wine and manure, I certainly cannot comprehend, but of the truth of this fact I feel perfectly assured, that the science of chemistry hitherto has thrown no light upon the subject.

Respectfully, R. T. BALDWIN.

Lice on Cattle.

As I have been in the habit of reading the *Farmer*, and have received much valuable information from it, I take this opportunity of giving some of my experience in destroying lice on cattle and calves, and ticks on sheep. I have tried almost every recipe that I have heard of, but found none that had the desired effect without injury to the animal, such as feeding sulphur and copperas in sufficient quantities to saturate the blood more or less according to the weather at time of feeding. My way is to smoke them with tobacco, blowing it into the hair about the nose, head and neck, along the back and wherever the lice are most to be found. I have used this for four or five years to a perfect satisfaction. It makes the hair soft and smooth, and makes it smell so much like a tobacco smoker that they cannot stand it. What it does not kill, the rest run for their lives; they cannot stand the smoke.

The instrument I use is made of tin, shaped like a tin horn, about six inches long, with a cover that fits tight over the big end, two and a half inches in diameter, with a small tube in the centre soldered to the cover to blow through.—Put the tobacco in with a coal of fire on top, and the cover fitting tight, the smoke goes through the tobacco, which makes it all the stronger. Last fall I bought several calves, some of them were poor and covered with blue lice; I have smoked them twice and now there is not one to be found on them, and they look slick as kittens. —*Wisconsin Farmer.*

Virgin Loam—The Formation of Soil.

BY WM. BRIGHT, PHILADELPHIA.

The choicest production of nature for gardening purposes, is the simple natural loam of a fertile pasture, which has not been cultivated for many years. A thick old sod, with a bit of turfy loam, which has not been disturbed by the plow for a long time, contains the elements of a good soil, in a condition which can scarcely be imitated by the art of man. A grape border formed of such materials alone, finely broken up, is perhaps equal, at first, to any composition that can be made. Why is this? In what manner and by what agencies has nature elaborated in this natural soil the elements of plant-growth, the sources of such certain and perfect fertility? We have often heard these questions asked, but until recently have never heard or seen a philosophical solution of the problem. Gardeners generally look upon the thing as a great mystery, a secret past finding out. Geology, we think, penetrates the heart of this mystery, and reveals the secret in a most satisfactory manner.

Geology, investigating the nature of the various strata, rocks, and other component parts of the earth, has been compelled to examine carefully the processes by which soil is formed, and presents to us the astonishing but undeniable fact, that the most important agents in the formation of both rocks and soil have been *insects*, or *animalculæ*, a vast proportion of them too small to be distinguished by the naked eye. Some of the limestone rocks are almost entirely composed of the remains of cretaceous or shell-covered animaculæ, of a size so minute that millions are condensed within the limits of a cubic inch. The creation of immense rocky reefs, hundreds of miles in extent, by the coral insect, is another instance of the part performed by minute creatures in the formation of the earth. The true *soil-makers* are also insects, and the chief of these is our old acquaintance, the *common earth-worm*, (*Lumbricus terrestris,*) or angle-worm, universally found in all good carbonaceous soils. This humble and seemingly useless creature is shown, by scientific research, to be the great natural *mould-maker*, or *loam-former*, of the entire earth. It is this poor, senseless worm which composts the elements of virgin loam and rich turfy sod, so much prized by all gardeners, which prepares, by mastication and digestion, as it were, the mineral and vegetable parts of the soil, the rocks and leaf-mould which form the basis of all soils, but which, without the agency of this worm, would lie separate, unmixed, and unfertile. How this is done, let us consider.

The ant and the earth-worm are called by geologists the pioneers of cultivation. As the honey-bee precedes the march of civilization towards the great forests, so the ant and the earth-worm precede the gardener in the cultivation of the soil. On a newly-made gravel walk, which is a good representation of a barren, rocky soil, the first insect which makes its appearance is the industrious little ant. These insects burrow into the sand, work it over and over, drop their excrement, die, and mingle their bodies with the ant-heaps, attract other insects, collect vegetable and animal matter, and thus organize the first element of soil. Now coarse, rank grass starts around and among these ant-hills, and these primitive forms of vegetable life dying, create the food of new and higher classes of plants, which, again dying, year after year, soon deposit a layer of vegetable matter or leaf-mould upon the surface of the sand and gravel. After this comes in the earth-worm, and the richer the layer of vegetable matter, the sooner does the great soil-maker appear upon the scene. The earth-worm, it would seem, feeds not only upon vegetable matter, but upon sand and rotten rock, or at least in its travels up and down through the surface material of the earth it passes through its intestines not only vegetable fibre, but coarse particles of sand, and a great variety of rocky substances rich in mineral elements, which it mixes, ferments, and composts, and finally ejects, in the shape of excrementitious worm-casts, upon the surface of the earth, thus furnishing the materials of pure loam, in the most perfectly combined and most finely divided form; just that rich, but simple, pure, natural, mysterious "bit of virgin loam," which the experienced gardener, the world over, so ardently coverts. Neither vegetable matter, nor mineral matter, unmixed, will create a fertile soil. Nor will merely mixing these substances together form a perfect loam. The rocks must be weather-worn, and decomposed by the action of air and water, by oxygen and carbonic acid. The vegetable fibre must decay and become converted into humus or pure mould. The earth-worm must feed upon these changing substances, and thus hasten the chemical changes, by its simple digestion, mixing and combining all in its poor maw, and finally ejecting its manurial treasures upon the surface of the earth, rich, carefully prepared, perfect plant-food, containing all the elements of fertility, united with a degree of skill beyond the art of the chemist or the gardener.

Here, then, is the great vegetable mould-maker, the great natural compost-former, a common earth-worm. It is said by scientific observers, that the earth-worm will create, by its excrement ejected in the shape of worm-casts, an inch in depth of mixed or perfect soil over the entire surface of a rich field within the short period of three years. But the labors of the worm do not end with the first formation of the soil; it is constantly at work opening the subsoil, and admitting air and water through its burrows, and bringing up the rich mineral elements from below, well digested and divided, to restore the waste of cultivation. And it is this poor worm which when we rest our exhausted soil, in a measure renews the fertility of our fields, by its never-ceasing chemical and mechanical labors in sand and leaf-mould. The presence of the earth-worm, and its little heaps of masticated soil, in large numbers, may thus be taken as the evidences of a fertile loam; for the little mounds which the worm throws up from its burrows is the great natural fertilizer of the earth, before which the special fertilizers of man sink into comparative insignificance, as crude and ignorant compounds.

In view of these facts, the gardener will no longer look upon the earth-worm (as he has sometimes done) as a worthless and destructive creature, which eats up his good loam, but as his co-laborer in the cultivation of the earth, his superior as a compost-maker and sod-former, and the manufacturer of his much-prized virgin loam. Thus happily does science penetrate and explain the seeming mysteries of nature.—*Horticulturist.*

Hints on Planting Fruit.

Except in the more northern portions of the continent, a southern aspect is the worst possible for all kinds of fruits, except where the one idea of earliness is all important.

So much has been said in this journal on the proper preparation of the soil for orchards, that it need not now be repeated. We would only say, that a light dryish soil is the best to choose for the peach. The pear does best on a strong loamy soil. Plums much the same as the last. The apple prefers a heavy loam, if on limestone so much the better. The cherry does well in soils adapted to the peach.

The grape perfers a deep warm soil, but one that is not dry—such as most limestone soils are after being trenched and drained. A partially shaded aspect is also preferable. Mildews and many diseases come from the drying influence of the full exposure to a July or August sun.

Probably most of our fruits do best in partial shade. The gooseberry and currant most certainly do. The former must have shade; and if

on the most northern aspect of a wall, so much the better. The Raspberry prefers a rather moist soil and partial shade.

In cultivating raspberries on a large scale they do best in hills, as the cultivator keeps them from crowding each other so much. For garden culture they are better in rows, the suckers to be kept hoed out occasionally as they grow; enough only being left that will be required for new plantations, of course a portion of the crop must be sacrificed to the suckers.

All raspberries are hardy where their canes ripen well; where the shoots appear not to have matured well, they have to be protected in winter by bending them down and covering with soil. Soms tie them up to stakes and cover with rye straw, corn stalks or cedar branches. In soils where small plants are liable to heave out in winter, strawberries will need covering,—where this does not take place, they need no protection.

Apples, quinces, and plums, should be examined before frost sets in, and if any borers have effected a lodgement—a jack-knife and strong piece of wire are all the implements necessary; a man will go over several hundred trees a day. It is a cheap way of preserving trees. If many of the remedies proposed by correspondents in our paper have been tried and found effectual, such as tobacco stems, &c., there will be few borers to deal with in the examination.

The dwarf pear in particular has done so well the past season, that as its management becomes better understood, it is fast regaining its former popularity. In choosing plants, select those that have been budded close to the ground, as when they are replanted the stocks should be buried an inch below the pear scion, which prevents the attacks of the quince borer. If a long stem has to be buried, the usual consequences of deep planting result, and do as much injury as the quince borer. Also in choosing, select, if possible, plants that have been raised from cuttings, for layered stocks have almost always a long deep tap looking root, on which dwarf pears do not do well. If we have to use such dwarf pear trees, better shorten some of this long trunk root before planting. Never plant what appears to be the stem of a tree far beneath the surface, under any circumstances, for disease will be most probably an ultimate consequence.—*Gardener's Monthly.*

Pleasure, like quicksilver, is bright and shy. If we try to grasp it, it still eludes us, and still glitters. We, perhaps, seize it, but find it rank poison.

The Proper Temperature of Cream for Churning.

The temperature of milk or cream has a much greater influence upon the quantity and quality of butter than is generally conceded. Dr. Anderson, the celebrated Scotch chemist, says: "If the heat of the milk-house be too great, the milk suddenly coagulates, without admitting of any separation of the cream; or it is so quickly turned sour as to greatly mar the operation. If, on the other hand, the milk be exposed to too cold a temperature, the cream separates from it slowly and with difficulty; it acquires a bitter and disagreeable taste; the butter can scarcely be made to come at all: and when it is come, it is so pale in the color, so small in the quantity, and of so little value in all respects, as to bring a very low price in the market, compared to what it would have brought had it been preserved in a proper degree of heat." This is good, sound logic; but still it does not answer the important query, what is the proper temperature of cream for churning? The following experiments made by Dr. Barclay and Mr. Alexander, will throw a little light upon the subject. The table exhibits the mean temperature of the cream, the time occupied in the different churnings, the quantity of butter obtained from one gallon of cream in each experiment, the gravity of one gallon of the churned milk produced in each process, and the comparative qualities of the different specimens of butter.

No. of Galls.	Mean. Temp.	Time occupied in churning. H. M.	Quantity of Butter. LB. OZ. DWT.	Quant. of Churned Milk. LB. OZ.
15	55	4 10	1 15 7.5	8 9
15	60	3 15	1 15 3.2	8 8
15	62	3 00	1 14 0	8 8
15	64	3 1	1 12 12.7	8 8
15	70	2 30	1 10 10.6	8 7

The butter produced in the first experiment was of the very best quality, rich, firm, and well-tasted; the second was not perceptibly inferior to the former; the third was good, but of inferior consistency; the fourth was soft and spongy; and the fifth inferior in every respect to any of the preceding.

There are several interesting facts connected with the above, which deserve special notice. One is, that cream should not be kept at too high a temperature. The cream churned at the lowest temperature produced the largest quantity and the finest quality of butter. As the temperature was raised, both quantity and quality were affected. The reporters say that "specific gravity of the churned milk was found to diminish as the temperature increased; thus showing, that

at the lower temperatures the butter, which is composed of the lighter parts of the cream, is more completely collected than at the higher temperatures, in which the churned milk is of greater specific gravity." The conclusion arrived at by the experimenters was, "that the most proper temperature to commence the operation of churning butter is from 50° to 55°, and that at no time in the operation ought it to exceed 65°; while; on the contrary, if at any time the cream should be under 50° of temperature, the labor will be much increased, without any proportionate advantage being obtained; and a temperature above 65° will be injurious to the quantity as well as to the quality of the butter."

House Plants.

Many of our readers, especially among the ladies, are engaged in the cultivation of plants within-doors, and have, doubtless, suffered more or less of vexation of spirit from witnessing the depredations of insects, and will, we doubt not, thank us for a remedy. The London *Floricultural Cabinet* has found and promulgated a remedy and preventive for the green-fly, mealy-bug, thrip, and scale, creatures that invest house and green-house plants. The editor has tried it and pronounces it effectual. It is cheap, easily applied, and is as follows:

A wash is made by dissolving half an ounce of bitter aloes in a gallon of water. With this wash syringe your plants so as to wet them under and over the leaves. If the enemy be there, he will be destroyed; if he be not there, he will not come. Whether it be the bitter on the surface, or the smell, or both, we know not, but, so far as it has been tried, infected plants may be put all round one so treated, and there will be no sign of thrips, bugs, or aphides, even if the others be covered. It is the only thing that destroyed the thrip for us; and we believe that, while the bitter remains on the surface, nothing living will touch it. We feel great confidence that even snails and slugs will not meddle with it; and all we can say about its effects on caterpillars is, that they have not as yet attacked a plant so prepared, and that they have committed depredations on plants very close. We do hope that a remedy so simple, so easily tried, and so void of all humbug, will be adopted by everybody who has plants to try it on.—*Boston Cultivator.*

"Gold," said Joseph Bonaparte, "is, in its last analysis, the sweat of the poor and the blood of the brave."

[For the American Farmer.]

Nevassa Guano.

BY A SNOWDEN PIGGOT, M. D.

Much has been said and written lately about phosphatic guanoes, and widely different opinions have been expressed as to both their relative and their absolute value. It is a little remarkable that this difference does not concern mere theoretical considerations, but also extends to those practical questions of easy solution by experienced chemists, touching the actual composition of the guano.

In nothing is this disagreement so marked as in the views expressed and the positive statements made in reference to the value and chemical constitution of Nevassa Guano. The analyses of Prof. Morfit and Mr. Buck, published in the last number of the American Farmer, surprised me by their wide deviation from the assumed commercial standard of this article, and the advertised analyses by which it is sold. I was particularly struck with the very low percentage of phosphoric acid which these gentlemen found in the Condor's cargo, and determined to examine it in my own laboratory. Through the kindness of Mr. Buck, I obtained a duplicate of his sample and have carefully analyzed it. My results, which I now lay before the public, will be seen to agree very closely with those published in your December number, so that the accuracy of the sample being assumed, there can be no doubt that they represent the true composition of the cargo:

Water and organic matter	12.34
Sand	6.33
Sulphate of Lime	1.05
Lime combined with Organic Acids, &c.	17.85
Carbonate of Lime	2.50
Bone Phosphate of Lime	19.52
Phosphate of Magnesia	0.95
Phosphate of Iron	2.87
Phosphate of Alumina	8.51
Chloride of Sodium	0.24
Sesquioxide of Iron	7.26
Alumina	20.54
	99.96

It will be seen that this result differs very much from that which is published under my name in the advertisement. It is due to myself, as well as to the public, to state here that I do not assume any responsibility for the accuracy of samples submitted to me for examination, unless I take them in person, in which case that fact is explicitly stated in the heading of the report. All that I can say is, that the difference in these cases existed in the samples themselves, and that I have no concern whatever in reconciling the discrepancy.

I do not propose to make at present any extended comment upon the above results. The sole object in presenting them is the verification of a fact interesting alike to the writer and the reader of the present paper. The question of solubility, which has been recently mooted, is altogether a different matter. It will receive attention in due time.

73 Smith's Wharf, Baltimore, Dec. 17th, 1860.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 59 Exchange Place.*

BALTIMORE, December 18, 1860.

BUTTER.—Ohio, in brls. and kegs, 11 to 12½; Virginia and Pennsylvania, in kegs, 11 to 12½; Glades, 14 to 23; Roll, 14 to 18.

BEESWAX—37 cts.

CHEESE.—Eastern 11½, Western 11.

DRIED FRUIT.—Apples $1.12½; Dried Peaches $2.25.

EGGS—In barrels, 22 cents per dozen.

FEATHERS—47 to 48 cents for good Southern.

LARD.—Brls. 10½, kegs 11½, jars and other country packages, 12½.

TALLOW—10½ cents.

WOOL.—Unwashed 25, tub washed 35, pulled 29, fleece 40 cents.

Baltimore Markets, Dec. 18.

COTTON.—There is a good inquiry, but demand has been confined to wants of manufacturers.

Grades.	*Upland.*	*Memphis and Gulf.*
Ordinary	7 a 8	7 a 8
Good do	9 a10	9½a10½
Low Middling	10¾a11	11¼a12½
Middling	11¼a11½	11¾a12
Strict do	11½a11¾	12 a12¼
Good do	12 a12¼	12½a12¾
Middling Fair	12½a12¾	13 a13¼

FISH—We quote prices as follows: Mackerel, $6 for medium No. 3; $8.75 for large No. 3. Alewives, $4. Eastern Herrings, $2.50. Labrador, $4.50 per barrel.

FLOUR.—We quote Howard street Super, $5.00; Extra, $5.50. City Mills Super, $4.75; Extra, $5.50. Family Flour, $6 00 for the different brands; very choice $7.50.

Rye Flour and Corn Meal.—We quote Rye Flour at $4.25. Corn Meal at $3.25 per bbl.

Buckwheat Flour.—Buckwheat $1.50$2.25 per 100 lbs.

GRAIN.—The receipts continue heavy. Red Wheat, $1.10 to $1.20 for fair to prime. White Wheat, $1.20a $1.25 for fair; $1.30 to $1.35 for good, $1.40 for prime, and $1.45 for choice lots.

Corn.—White and yellow old 59 cents, new 48 cents.

Oats.—Virginia and Maryland, 30 cents. Pennsylvania, 36 cents.

Rye.—Maryland and Virginia, 72; Pennsylvania, 75 cents.

Mill Feed.—Brown stuff, 14; middlings, 28 cents per bushel.

PROVISIONS—*Bacon.*—Shoulders, at 8, and Sides at 10 cents per lb.

Bulk Meat.—Shoulders 6¼; Sides 8¼ cents per lb.

Pork.—Mess, $16.50.

PEAS AND BEANS.—Black-eyed Peas $1.25 per bushel. White Beans $1.40 to $1.60 per bushel.

SEEDS.—Clover seed, $5.00. Timothy, $2.00. Flaxseed, $1.30 per bushel.

POTATOES.—Carter's, 60c. Peach Blows, 65c. White Mercers, 75 to 90 cents per bushel.

ASHES.—Pot and Pearl, $5.25 per 100 lbs.

TOBACCO.—All good qualities of Maryland sell readily at full prices. We continue to quote frosted Maryland at $2; ground leaf at $3 to $7; common at $2.50 to $3.50; middling, $4 to $4.50; good middling, $5 to $5.50; good leaf, $6 to $6.50; and fine at $7 to $12. Ohio Tobacco—inferior to good common at $3 to $4; red and spangled at $5 to $6.50; good and fine red spangled at $7 to $8, and good and fine yellow at $9 to $12. Kentucky Tobacco. We continue quotations, viz: common lugs at $4.25 to $4.75; good do. at $5.25 to $5.50; inferior leaf at $5.75 to $6.25; good do. at $6.50 to $7.50; fine at $7.50 to $9; choice at $10 to $12; and rich heavy Kentucky at $7 to $12.50.

GUANO AND OTHER FERTILIZERS.—Prices continue without change. We quote Peruvian at $61 to $62 per long ton, according to quantity—the latter being for a single ton and upwards. For less than a ton, at the rate of $56 per ton of 2000 lbs.; California or Elide Guano, $40 per long ton: Manipulated, $47; Super-Phosphate, $45; Mexican, AA, $20 to $22; American Guano $40 per ton of 2240 lbs.; Sombrero, $30 per long ton; Ichaboe Guano, $50. Navassa Guano, $25 per ton. Ground Bones, $27 per 2000 lbs. (packages extra.) Poudrette $10 per ton in bulk. Plaister, $1.25 per brl.

HAY AND STRAW.—Hay, $14 to $15 per ton. Straw, none in market.

GINSENG.—45 cents per lb.

CATTLE MARKET, Dec. 13.—Beef Cattle were in good supply again to-day, the receipts at the Scales reaching 1,150 head, but the demand for them was pretty active, and prices were rather higher than on last market day. Of the Cattle received 300 head were driven to Philadelphia, 100 were left over unsold, and the remaining 750 head were taken by Baltimore butchers and packers, the bulk at prices ranging from $2.75 to $3.87½, but a few choice Cattle brought a still higher figure. The average to-day was $3.25 per 100 lbs. net.

SHEEP.—Sheep are scarce and higher. We quote them to-day at $4 to $5 per 100 lbs. gross, at which figure they were active.

NEW ADVERTISEMENTS.

A Young Lady—For Situation as Teacher.
Bornemann, A.—Dutch Flower Roots.
Elliott & Co., A. C.—Sombrero Guano.
Hatch, A. G. Gen'l Agent—Important to Stock Growers.
Linsley, D. C.—American Stock Journal.
Merrell, W. Agent—Wheeler & Wilson's Sewing Machines.
Randolph, J. W.—Plantation Book.
Reese & Co., John S.—Phospho-Peruvian Guano.
Saxton & Barker—The Horticulturist.
Scheller, A. G.—Important Potato Discovery.
Towles, Rev. John—Desirable Farms.
Warfield & Co., Hy. M. Agent—Fowles' Fertilizer.
Wilkinson, John—Landscape Gardening, &c.
Wood & Son, Ross W.—Sombrero Guano.

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SUNDAY READING.

See how in the winnowing of corn, the fullest and largest grains always lie the lowest, and the lightest take up the highest place. It is no otherwise in morality. Those who are most humble are fullest of grace; and oftentimes those are most conspicuous which have the least substance. To affect obscurity or submission, is base and suspicious; but he whose modesty presents him mean to his own eyes and lowly to others, is commonly secretly rich in virtue. Give me rather a lowly fullness, than an empty advancement.

Flowers are true clients of the sun; how observant they are of his motion and influence. At even they shut up, as if mourning for his departure, without whom they neither can nor would flourish. In the morning they welcome his rising with a cheerful openness; and at noon are fully displayed, in a free acknowledgment of his bounty. Thus is a good heart towards God. When thou hidest thy face, I am troubled, saith the man after God's own heart; in thy presence is life and fulness of joy. Thus the carnal heart feels towards the world: when that withdraws its favour, he is dejected; and revives with its smiles. All is in our choice. Whatsoever is our sun we shall be drawn after it. Oh God, be thou to me such as thou art in thyself. Thou shalt be merciful in drawing me: I shall be happy in following thee.

We are not to inquire into any hidden records; forgiveness of sins is not a secret sentence, a word, or a record; but it is a state of change, and effected upon us; and upon ourselves we are to look for it, to read it, and understand it. We are only to be curious of our duty, and confident of the article of the remission of sins; and the conclusion of these premises will be, that we shall be full of hopes of a prosperous resurrection.

Between two friends it is the law of kindness that he who confers the favor should straightway forget it, but he who receives it, never; let him that bestows it, hold his tongue; let him talk, who has received.

There is no readier way for a man to bring his own worth into question, than by endeavoring to detract from the worth of other men.

None are more uncurable than they who deem themselves whole.

We are naturally palsied, and lame, and halt with sin; but when Jesus says to us, "Repent and your sins shall be forgiven," we are strengthened and encouraged to arise, and walk in the paths of righteousness. We leave our burden o sin behind us, *and take up our bed* and carry it along with us; that is, in our duty we find our rest.

The Earth is a great devourer, and also a great preserver. Liquors and other things are therein long kept from putrifying, and are rather improved than otherwise by being buried in it. But above all, how safely doth it keep our bodies until the resurrection. We are here only laid up for custody. Balms, and sere-cloths, and leads, cannot do so much as this lap of our common mother. When all these are dissolved to dust, as being unable to keep themselves from corruption, she receives and restores her charge. I can no more withhold my body from the earth, than the earth can withhold it from my maker. Oh God, this is thy cabinet or shrine, wherein thou pleasest to lay up the precious relics of thy dear Saints, until the jubilee of glory. With what confidence then should I commit myself to this sure repository, while I know thy word to be just, thy power infinite.

Gold is both the fairest and most solid of all metals; yet it is the soonest melted in the fire. Coarser metals are dissolved with greater difficulty. Thus a sound and good heart is most melted into sorrow and fear, by the sense of God's judgments, whereas the carnal mind is stubborn and remorseless. All metals are but earth, yet some are of finer temper than others; all hearts are of flesh, yet some are, through the power of Grace, more capable of spiritual apprehensions. Oh God! we are such as thou will be pleased to make us. Give me a heart that may be sound for the truth of Grace, and melting at the terrors of thy law. I can be for no other than thy sanctuary on earth, or thy treasury in heaven.

Heaven and Earth.—What a strange contrariety is here? The heaven is in continual motion; and yet there only is the place of rest. The earth ever stands still; and yet here is nothing but restlessness and inquietude. Surely the end of that heavenly motion is for the benefit of the earth; and the end of all these earthly turmoils is our repose in heaven. Those who imagine the earth to turn about, and the heavens to stand still, have yet supposed that we may stand or set still on that whirling globe of earth; how much more may we be persuaded of our perfect rest above those moving spheres. It matters not, oh God, how for a while I am vexed here below, if, ere long, I may repose with thee forever.

REESE'S SOLUBLE PHOSPHO-PERUVIAN GUANO.

ANALYSIS OF

REESE'S SOLUBLE

PHOSPHO-PERUVIAN GUANO

INTRODUCED 1856.

Soluble organic matter.....	25 79 per cent.
Yielding ammonia, 8 per ct.	
Soluble Phosphoric Acid and Phosphate of Lime }	49 77 per cent.
S. Lime, Soda, Potash, Silica, &c..	24 44 per cent.
	100.

The use of this Guano for the last four years in the Cotton States, has established it a staple and standard fertilizer for the cotton crop. It has passed through every variety of experimental use in contrast with other fertilizers, and has maintained a character for reliability through a period of years—which gives it a standard of excellence which cannot be claimed for articles of recent introduction.

The preparation of this Guano constitutes the sole business of its proprietors, and has their exclusive personal attention; it may therefore be relied upon for uniformity of quality and preparation.

For the remarkable effects of this article on Cotton, we refer to the extracts from correspondence given herewith, and we could fill many pages with letters of similar import.

JOHN S. REESE & CO.,
Baltimore.

CORRESPONDENCE.

POINT PETRE, Orglethorpe Co., Oct. 26, 1860.
Respected Sirs:—The Reese's Guano did exceedingly well. I raised double the Cotton on the same land that I did the year before last, (which was a good Cotton year,) with about the same cultivation, notwithstanding the drought. Yours very respectfully,
W. W. EVERETT.

L. R. COLLINS, Mt. Bean, Geo., writes Oct. 15, 1860—"All other manures have failed. Lot or stable manures have made a perfect failure for me, while Reese's made a good early crop, and had frost not come so soon, say by ten days, I should have doubled my money invested."

M. F. MORGAN, Sandersville, Geo., Oct. 17, 1860, says—"I have seen no difference in the Peruvian and Reese's. I have picked eight hundred pounds per acre off of it, and I think there is a hundred pounds per acre to open on it now. Upon the whole, I think Reese's is much cheaper than the Peruvian. I shall try it again another year."

WM. C. SANDERS, Talbot Co., Geo., Oct. 20, 1860, says—"A portion of the field was manured with five two horse wagon loads of stable manure per acre in the drill, which yields about the same as 150 lbs. per acre of Reese's Guano 'bedded on.' My crop up to July bid fair for 1,000 to 1200 lbs. per acre on common fine land."

B. F. LITTLE, Little's Mills, Richmond Co., Oct. 29th, 1860, says—"On comparing the result, I have found the effects produced by Reese's Guano in every case to be fully equal to those arising from the Peruvian, both in the growth of the weed and in the number, and full development of the forms and bolls. My cotton manured with guano stood the long drought of the summer better than most of my crop to which other applications were made, such as stable manure, cow-lot, cotton seed and compost heaps."

R. NORFLEET, Tarboro, N. C., Aug. 30, 1859, says—"I still adhere to the idea I advanced two years ago—that the crop is better sustained at the period of bearing and maturing its fruit by your Guano than by Peruvian, or any other fertilizer I have yet used, and as it is fully 17 per cent. cheaper than that article, I conceive it will in a few years supercede it altogether."

W. H. B. TAYLOR, Green Co., N. C., Oct. 1859, says—"I used a ton of Reese's Guano last spring on cotton, and the result was most gratifying, excelling other manures used on the same field in promoting the growth and maturity of the cotton. I am satisfied it paid *well*, and shall use more of it next spring.

DAVID W. BULLOCK, Edgecomb Co., N. C., Aug. 1859, says—"My opinion as regards the superiority of Reese's Guano over any other, is manifest in the fact that I used, in 1858, seven tons, with such marked advantage to my cotton crop, as to induce me to use three times as much the present year. So far the result is satisfactory—so much so, that it is my intention to manure five hundred acres with it for cotton in 1860.

"A better stand and uniformity of growth seems to be the almost universal result from the application of your Guano."

JESSE H. POWELL, Edgecomb Co., N. C., Aug. 1859, writes—"Experiments were instituted by me at the time of planting the cotton crop, to test as nearly as possible the relative value of yours and Peruvian Guano. At present the application of a similar quantity of each is decidedly favorable to Reese's. That being the case, and Peruvian costing 16 per cent. more, I have no hesitation in giving yours decided preference.

"I have observed, during a dry spell this season, that where Peruvian was used alone, the cotton fired considerably, while that manured with Reese's remained green."

JOS. J. W. POWELL, Halifax Co., N. C., Aug. 1859—Gentlemen, "Heretofore I have used Peruvian Guano, having but little confidence in any other. Yielding to the representations of my friend, Baker Station, of Edgecombe, I bought 18 tons of 'Reese's Guano' last spring, and applied it to a part of my cotton crop.

"It affords me pleasure, now that the crop is sufficiently advanced to decide of what advantage the Guano has been to it, to assure you that I have no cause to regret the change.

"I conceive that the agricultural community is much indebted to you for a fertilizer, equal, if not superior, in every respect, to Peruvian Guano, at a cost of from 15 to 18 per cent. less"

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